

वार्षिक प्रतिवेदन Annual Report 2010-2011

NAARM



**National Academy of
Agricultural Research Management
Indian Council of Agricultural Research
Government of India**
Rajendranagar, Hyderabad -500407
<http://www.naarm.ernet.in>

वार्षिक प्रतिवेद न Annual Report 2010-2011



राष्ट्रीय कृषि अनुसंधान प्रबंध अकादमी

राजेन्द्रनगर, हैदराबाद-500 407, (आ.प्र.) भारत

National Academy of Agricultural Research Management

Rajendranagar, Hyderabad-500 407, (A.P.) India

Tel : (040) 24015070, 24581357, 24581322 Fax : (040) 24015912

E-mail : naarm.hyd@naarm.ernet.in

<http://www.naarm.ernet.in>

Correct citation

NAARM 2011. Annual Report of the National Academy of Agricultural Research Management for 2010-11 NAARM, Rajendranagar, Hyderabad-500407, Andhra Pradesh, India.

Editorial Board

Chief Editor : Dr G.P. Reddy

Members : Dr N.H. Rao
Dr P. Manikandan
Dr M.N. Reddy
Dr R. Kalpana Sastry
Dr D. Rama Rao

Editorial Assistance : Mrs G. Aneesa

Cover Design and Layout : Mr P. Namdev
Photography : Mr M. Ravi

Published by : Director, NAARM
Ph.:040-24015070; 24581322; 24581357
Fax: 040-24015912
E-mail: director@naarm.ernet.in
<http://www.naarm.ernet.in>

Printed at : Vamsi Art Printers Pvt. Ltd
040-23311858, 23307743
E-mail: info@vamsi.com

Contents

Preface	1
कार्यकारी सारांश	2
Executive Summary	6
NAARM - An Overview	9
Capacity Building	17
Workshops	27
Policy Interactions	32
Conferences	40
Research	41
Education	73
Consultancy	80
Achievements / Awards / Recognitions	81
Other Events	86
Publications	89
Faculty News	97
Personalia	108



Preface

The landscape of Indian agriculture is changing. Entry of multi-nationals and organized sector in agriculture and agribusiness is opening new avenues in the entire value chain of agri-commodities. The paradigm shift calls for 'business unusual' in agri-research and education, human resource development, and policy communication. The challenge is to (i) change the mind-set of those involved in value chain of agri-commodities, and (ii) enhance the management skills of professionals to improve the production and marketing efficiency. This requires an integrated approach to harness the unlimited opportunities in changing agriculture scenario. The Academy accepted the challenge and with limited and outstanding faculty, it strived to contribute in transformation process.

The Academy adopted a multi-pronged strategy, which relied on four pillars: (i) strong and need-based research, (ii) capacity development; (iii) higher education in agricultural management; and (iv) effective policy communication. This year once again the Academy undertook large number of research projects in matrix-mode management, and organized as many as 50 capacity development programmes, which were attended by 1728 participants from National Agricultural Research System, corporate sector and organizations represented by civil societies. On education front, the first batch of post-graduate programme in agriculture (management) was completed successfully with excellent placement opportunities for the students. The post-graduate programme on technology management in agriculture was launched in a distance mode in partnership with the University of Hyderabad. The most significant accomplishment was starting Joint Entrance Test for Agribusiness management (JET-ABM) in partnership with MANAGE and NIAM. The Academy took key role in finalizing the process to reduce cost, ease pressure on students and project agribusiness in a partnership mode. The Academy also organized several policy communication workshops to participate in policy formulation.

The Academy is reorienting its programme and focusing more to build leadership in the National Agricultural Research System. In strengthening and reorganizing the programmes of the Academy, we received overwhelming support from the Council. We are especially grateful to Dr. S. Ayyappan, Director-General, Indian Council of Agricultural Research and Secretary, Department of Agricultural Research and Education, Government of India, for extending exceptional support, and extending continuous encouragement and guidance to make the Academy a world class institution. We are thankful to Dr Arvind Kumar, Deputy Director-General (Education) for providing full support in strengthening the Academy's programmes. We offer our sincere thanks to the Secretary, Indian Council of Agricultural Research, and personnel and finance divisions.

My colleagues, Dr G. P. Reddy and Mrs. G. Aneja took the responsibility of compiling and editing the report; Mr. P. Namdev brought the report to the present form and Mr. M. Ravi provided the photographs. Dr N. H. Rao, Dr P. Manikandan, Dr M. N. Reddy, Dr D. Rama Rao and Dr R. Kalpana Sastry supervised and provided valuable suggestions in finalizing the report. I sincerely acknowledge their incredible contribution in brining out this report. I also acknowledge the outstanding contributions and team efforts of all the staff of NAARM for their overwhelming support in fulfilling the mandate of the Academy.

I am sure that our partners and stakeholders will find the report useful. We always look forward for their continuous support and valuable suggestions in accomplishing our mission.



P K Joshi
Director

31 March 2011
Hyderabad

कार्यकारी सारांश

वर्ष 2010-11 के दौरान अकादमी के गतिविधियों का महत्व, विशेषतः तीन विषय क्षेत्रों पर आधारित रहा। (i) सक्षमता निर्माण (ii) अनुसंधान एवं नीतिगत सहयोग एवं (iii) स्नातकोत्तर शिक्षा। यह नार्म के दीर्घावधि परिदृष्टि एवं XI पंचवर्षीय योजना के लिए अनुमोदित रणनीति के अनुरूप रहा।

सक्षमता निर्माण : अकादमी में कृषि अनुसंधान सेवा के लिए तीन बुनियादी पाठ्यक्रम (फोकार्स) आयोजित किए गये, जिसमें 158 नये भर्ती हुए कृषि अनुसंधान सेवा परिवीक्षाधीन प्रशिक्षुओं ने सफलतापूर्वक प्रशिक्षण प्राप्त किया। रा.कृ.अनु.प के 742 मध्यम स्तरीय एवं वरिष्ठ व्यावसायिकों के लिए 28 वरिष्ठ स्तरीय प्रशिक्षण कार्यक्रम संपन्न हुए, जिसमें प्रबंधन विकास कार्यक्रम एवं कार्यशालाएँ सम्मिलित थी। इन कार्यक्रमों में निम्नांकित विषय क्षेत्र थे: कृषि अभिनवता की प्रोन्नति के लिए नेतृत्व विकास, सफल अनुसंधान प्रस्तावों का विकास, अनुसंधान संबंधी प्राथमिकता निर्धारण, प्रबोधन एवं मूल्यांकन, भूअंतरीक्षीय ज्ञान प्रबंधन, मल्टीमीडिया विषय वस्तु विकास, ई-शिक्षा प्रणाली का विकास, बौद्धिक संपदा प्रबंधन एवं प्रौद्योगिकी अनुज्ञापतिकरण, एसएएस युक्त डेटा विश्लेषण, बीज प्रबंधन, प्रशासन एवं वित्तीय प्रबंधन, मजदूर संबंधी नियम एवं अन्य। भा.कृ.अनु.प के नये भर्ती हुए प्रभागाध्यक्षों, परियोजना समन्वयकों, आंचलिक समन्वयकों एवं प्रधान वैज्ञानिकों तथा राज्य कृषि विश्वविद्यालयों के अनुसंधान निदेशकों के लिए तीन प्रबंधन विकास कार्यक्रम एवं एक कार्यकारी विकास कार्यक्रम संपन्न हुए। अकादमी द्वारा रा.कृ.अनु.प के संस्थानों के विशेष अनुरोध पर विशेष क्षेत्रों में चार प्राधिकृत गैर परिसरीय कार्यक्रम आयोजित किये गये, जिसमें 140 व्यावसायिक प्रशिक्षित हुए। वर्ष के दौरान अकादमी द्वारा 50 सक्षमता निर्माण कार्यक्रमों में लगभग 1682 व्यावसायिकों ने भाग लिया।

यद्यपि, रा.कृ.अनु.प (एन.ए.आई.पी) के शिक्षा एवं सक्षमता निर्माण परियोजना के तहत नार्म के संकाय सदस्यों ने भा.कृ.अनु.प, राज्य कृषि विश्वविद्यालय तथा कृषि व्यापार एवं गैर सरकारी संगठन क्षेत्रों के तीन सहभागी संस्थानों, जैसे आई.आई.एम, लखनऊ, मैनेज एवं रा.ग्रा.वि. संस्थान के 320 व्यावसायिकों के प्रशिक्षण में सुविधा प्रदान की। इसके अतिरिक्त एन.ए.आई.पी. (रा.कृ.अनु.प) के शिक्षा एवं सक्षमता निर्माण परियोजना के द्वारा, विश्वीय स्तर के प्रतिनिधि विश्वविद्यालयों एवं संस्थानों में विज्ञान के प्रमुख क्षेत्रों में रा.कृ.अनु.प के नये 200 वैज्ञानिकों के लिए अन्तर्राष्ट्रीय प्रशिक्षण भी नार्म द्वारा प्रदान किया गया।

अनुसंधान एवं नीतिगत सहयोग : अकादमी की शोध परियोजनाएँ इन पाँच प्रमुख विषय क्षेत्रों में क्रियात्मक है। (i) कृषि विज्ञान एवं प्रौद्योगिकी नीति (ii) सूचना एवं संप्रेषण प्रौद्योगिकी एवं संस्थानीय परिवर्तन के द्वारा कृषि अभिनवता की वृद्धि (iii) कृषि अनुसंधान की सुदृढ़ता के लिए संगठन एवं प्रबंधन (iv) कृषि विपणन एवं मूल्य कड़ी प्रबंधन एवं (v) शासकीयता एवं संस्थानीय व्यवस्थाएँ। इन क्षेत्रों के कई परियोजनाओं को एन.ए.आई.पी, डीएसटी एवं अन्य अभिकरणों द्वारा निधि प्राप्त है। एन.ए.आई.पी द्वारा निधि प्राप्त 6 बहु-संस्थानीय परियोजनाओं में दो परियोजनाओं का कनसोरशियम अभिनेतृत्व अकादमी ने किया। वर्ष 2010-11 की प्रमुख उपलब्धियाँ रही :

- ❖ भा.कृ.अनु.प के वैज्ञानिकों के लिए वार्षिक मूल्यांकन प्रतिवेदन हेतु संशोधित प्रोफार्मा
- ❖ 2020 तक उच्चतम शिक्षा कृषि मानवशक्ति उपलब्धता एवं मानवशक्ति पुर्वानुमान पर डेटाबेस
- ❖ रा.कृ.अनु.प में ई-शिक्षा पद्धति को विकसित करने हेतु सक्षमता निर्माण के लिए रणनीति एवं मार्गबोध

- तथा प्रबंधन संबंधी क्षेत्रों में 60 ई-शिक्षा पाठ्यक्रमों का विकास
- ❖ संगठनात्मक परिवर्तन, कार्य निष्पादन, निर्धारण एवं संगठनात्मक नागरिकता व्यवहार प्रबंधन के लिए संकल्पनात्मक मॉडल
 - ❖ अभिनवता कार्य निष्पादन एवं अनुसंधान गुणवत्ता के मानचित्रण हेतु ढाँचा एवं प्रणाली।
 - ❖ ऑनलाईन प्रशिक्षण मूल्यांकन पद्धति
 - ❖ कड़ियों के बीच संस्थानीय व्यवस्थाएँ एवं कृषि पदार्थों की मूल्य कड़ियों के निर्धारण पर केस अध्ययन
 - ❖ कृषि अभियांत्रिकी एवं मात्स्यकीय अनुसंधान में बौद्धिक संपदा संरक्षण का स्तर निर्धारण।
 - ❖ भारत में बीटी कपास का बौद्धिक संपदा सौंदर्यीकरण
 - ❖ कृषि में भौगोलिक संकेतक उत्पादों की भौगोलिक सूचना पद्धति एवं डेटाबेस
 - ❖ जैव प्रौद्योगिकी आविष्कारों में जैव विविधता का मूल्यांकन
 - ❖ कृषि के संदर्भ में नॉनोप्रौद्योगिकी एकस्वाधिकार एवं बिब्लीयोग्राफीक स्रोत का डेटाबेस एवं यथार्थ कृषि, रोग निदानशास्त्र एवं कृषि नॉनोप्रौद्योगिकी में नॉनोप्रौद्योगिकी उपयोग का निर्धारण
 - ❖ कृषि अनुसंधान, शिक्षा एवं प्रौद्योगिकी हस्तांतरण (आंध्र प्रदेश राज्य के लिए) के विशेष संदर्भ में अंतरिक्षीय एवं संबंधित डेटा प्रदान करने हेतु नार्म भू-अंतरिक्षीय पुस्तकालय (एन.जी.एस.एल)
 - ❖ ग्रामीण सामुदायों द्वारा लिये गये निर्णय को समर्थन करने हेतु ग्राम ज्ञान केंद्रों में उपयोगिता के लिए भू-अंतरिक्षीय ग्राम ज्ञान प्रबंधन पद्धति।

राष्ट्रीय एवं अन्तर्राष्ट्रीय पत्रिकाओं में समिक्षित लगभग 39 प्रकाशनों का श्रेय, नार्म के संकाय सदस्यों के अनुसंधान को जाता है, जिसमें 6 पुस्तकें, 11 पुस्तक अध्याय एवं 52 अन्य प्रकाशन एवं प्रस्तुतीकरण सम्मिलित थे।

नार्म द्वारा आयोजित नीतिगत पारस्परिक कार्यशालाएँ, सम्मलेन एवं संगोष्ठियों द्वारा एक ऐसा मंच प्रदान किया जायेगा, जिसके माध्यम से कृषि में राष्ट्रीय एवं अन्तर्राष्ट्रीय नीति संबंधी कई महत्वपूर्ण मद्दों पर रा.कृ.अनु.प के विकासशील देशों एवं भारत में संवाद होगा। इसमें कृषि व्यापार ज्ञान विनिमय, कृषि में फ्लाइ ऑश, भारत में कृषि विस्तार अभिकल्पना, रा.कृ.अनु.प में नेतृत्व विकास, लघु कृषकों की आजीविका, कृषि हेतु मानवशक्ति योजना एवं कृषि मूल्य कड़ी में नॉनोप्रौद्योगिकी का भवितव्य सभी कार्यशालाएँ सम्मिलित थी। सभी कार्यशालाओं की प्रमुख उपलब्धियाँ, रा.कृ.अनु.प के कार्यान्वयन संबंधी ही रही। कुल 12 नीतिगत प्रभावात्मक कार्यशालाएँ/सम्मेलन अकादमी द्वारा आयोजित किये गये जिसमें रा.कृ.अनु.प के सार्वजनिक एवं निजी संस्थानों के लगभग 500 व्यावसायिकों ने भाग लिया।

शिक्षा : जुलाई 2010 के दौरान स्नातकोत्तर प्रबंधन (कृषि) डिप्लोमा के द्वितीय बैच में 20 विद्यार्थियों को प्रवेश दिया गया। मार्च 2010 के दौरान आयोजित अखिल भारतीय परिषद चयन प्रक्रिया आधारित रही, जिसमें सामुहिक विचार-विमर्श एवं मई 2010 में संपन्न वयैक्तिक साक्षात्कार भी सम्मिलित रहे। प्रथम एवं द्वितीय बैच के लिए उद्योग क्षेत्र के साथ ग्रीष्मकालीन इंटरनशीप भी आयोजित की गई। अप्रैल 2011 में प्रथम बैच के विद्यार्थी स्नातक घोषित किए जायेंगे। इस बैच के स्नातक पदवीधर, प्रख्यात संगठनों में प्रतिष्ठित नौकरी हेतु चयनित हैं। तीसरे बैच के लिए प्रवेश प्रक्रिया भी आरंभ हुई है। इस संदर्भ में एक प्रमुख पहलु यह रहा कि कृषि मंत्रालय, भारत सरकार के तहत के तीन प्रमुख राष्ट्रीय प्रबंधन संस्थान नार्म, मैनेज, हैदराबाद एवं एन.आई.ए.एम, (जयपुर), द्वारा संयुक्त रूप से

आयोजित कृषि व्यापार प्रबंधन हेतु अखिल भारतीय संयुक्त प्रवेश परीक्षा (जेईटी-एबीएम-2011) का उद्भव हुआ है।

नार्म के स्नातकोत्तर शिक्षा क्षेत्र का अन्य महत्वपूर्ण पदचिन्ह यह रहा कि कृषि में प्रौद्योगिकी प्रबंधन का स्नातकोत्तर एक वर्षीय डिप्लोमा पाठ्यक्रम हैदराबाद विश्वविद्यालय के सौजन्य से ओपन सुदूर शिक्षा (ओडीएल) मोड़ के माध्यम से प्रदान करने के समझौते करार पर हस्ताक्षर होने से संबंधित रहा। डिप्लोमा की पदवी दोनों संस्थानों द्वारा संयुक्त रूप से प्रदान की जायेगी। पीजीडीटीएमए के प्रथम बैच (2011) में 128 विद्यार्थियों ने प्रवेश लिया है। इसमें स्नातकोत्तर अध्ययन के विद्यार्थियों के अतिरिक्त उद्योग एवं शिक्षा क्षेत्र से कई कार्यकारी भी जुड़े हुए हैं।

भविष्य में अनुसंधान व विकासगत परिलक्ष्य में नार्म के योगदान पर राष्ट्रीय परामर्श: अकादमी में जनवरी 6 एवं 7, 2011 के दौरान एक उच्च स्तरीय राष्ट्रीय परामर्श बैठक आयोजित की गई। इसका प्रमुख उद्देश्य, अकादमी को सुदृढ़ करने एवं कृषि क्षेत्र के परिवर्तनशील राष्ट्रीय एवं विश्वीय परिदृश्य के संदर्भ में कार्यक्रमों को अभिमुखीकृत करना रहा। इस बैठक में भा.कृ.अनु.प के वरिष्ठ कार्यकारी, जिसमें महानिदेशक, भा.कृ.अनु.प; कृ से अनु बोर्ड के अध्यक्ष एवं सदस्य; राष्ट्रीय निदेशक, एन.ए.आई.पी; भा.कृ.अनु.प के उपमहानिदेशक शिक्षा, फसल विज्ञान, पशुविज्ञान, बागवानी, अभियांत्रिकी एवं विस्तार प्रभाग, भा.कृ.अनु.प संस्थानों के चयन किये गये निदेशक एवं सहा महानिदेशक, शिक्षा, बौ.सं.अ एवं मात्स्यकी इत्यादि ने भाग लिया। नार्म के वर्तमान कार्यक्रमों की पुनर्कीक्षा की गई और निम्नांकित संबंधी विशेष सिफारिश दिये गये (I) कृ.अनु.सेवा में नये भर्ती होने वाले बुनियादी पाठ्यक्रम की पुनःसंरचना एवं अभिकल्पना

(ii) नेतृत्वता विकास के लिए नये कार्यक्रम, मध्यम स्तरीय वैज्ञानिकों के लिए पुनश्चर्या पाठ्यक्रम कृषि अनुसंधान सेवा में सीधे भर्ती हुए वैज्ञानिकों के लिए अभिमुखीकरण कार्यक्रम एवं भा.कृ.अनु.प तथा राज्य कृषि विश्वविद्यालयों

के वरिष्ठ प्रबंधकों के लिए पुनश्चर्या कार्यक्रम को आरंभ करना।

(iii) स्नातकोत्तर शिक्षा कार्यक्रम को निरन्तर रूप से चलाना तथा सुदूर मोड़ द्वारा अनुसंधान प्रबंधन पर नये कार्यक्रमों को आरंभ करना। (iv) अकादमी में भा.कृ.अनु.प राष्ट्रीय प्रोफेसर एवं अध्यक्षीय प्रोफेसरशीप की शुरुवात (v) नार्म को सुदृढ़ बनाना, जिसमें 75 कैडर संख्या की वृद्धि एवं 6 प्रभागों व 3 संयुक्त निदेशकों से युक्त नये संगठनात्मक ढाँचे का निर्माण

कृषि व्यापार ज्ञान केंद्र (ए.के.सी) : ए.के.सी, नार्म एवं ज्ञानटेक सूचना प्रणाली प्रा.लि. (जी.आई.एस.पी.एल) हैदराबाद के बीच सार्वजनिक, निजी सहभागिता (पीपीवी) की पहल है जिसमें कृषकों, शिक्षाविदों, अनुसंधान एवं उद्योगवर्ग के बीच ज्ञान विनिमय द्वारा प्राथमिक मूल्य कड़ी बनाए रखना है। ए.के.सी. का निर्माण अप्रैल 7, 2010 को हुआ। ए.के.सी द्वारा एक कृषि व्यापार ज्ञान विनिमय पर राष्ट्रीय कार्यशाला, बीज प्रबंधन पर विशेष पाठ्यक्रम आयोजित किये गये तथा नार्म में पाँच कपनियों के लिए कैबिन स्थान उपलब्ध करवाए गये। ए.के.सी द्वारा <http://www.akcnaarm.com> पर स्थित ज्ञान विनिमय पोर्टल को सफलतापूर्वक विकसित किया गया।

संपर्क कड़ियाँ : अकादमी द्वारा अपने पारंपरिक सहभागी-भा.कृ.अनु.प, राज्य कृषि विश्वविद्यालय एवं सी.जी.आई.ए.आर संस्थानों से अपना संपर्क सुव्यवस्थित रूप से स्थापित है। इसके अतिरिक्त, प्रौद्योगिकी प्रबंधन, स्नातकोत्तर शिक्षा एवं सक्षमता निर्माण संबंधित क्षेत्रों से गैर सरकारी संगठनों, उद्योग क्षेत्र, कृषि व्यापार एवं विश्वविद्यालयों सहित अन्य अन्तर्राष्ट्रीय संस्थानों से भी नई संपर्क कड़ी स्थापित की गई है।

संकाय को मान्यता : नार्म के संकाय सदस्यों को कई प्रख्यात अन्तर्राष्ट्रीय एवं राष्ट्रीय पत्रिकाओं के संपादकीय बोर्ड द्वारा अनुसंधान शोध पत्रों की पुनरीक्षा हेतु आमंत्रित किया गया है। कई प्रबंधकीय संस्थानों द्वारा कई संकाय सदस्यों को अतिथि वक्ता के रूप में निमंत्रित किया गया है। विश्वविद्यालय/ संस्थानों द्वारा हमारे कई संकाय

सदस्यों को पीएचडी मार्गदर्शकों के रूप में भी मान्यता मिली है।

अन्य गतिविधियाँ

एन.ए.आई.पी सहायता डेस्क : शिक्षा एवं सक्षमता निर्माण परियोजना के तहत नार्म में स्थापित सहायता डेस्क एवं अनुसंधान प्रस्ताव विकास पर समवर्ती प्रशिक्षण कार्यक्रमों द्वारा सार्वजनिक निजी कनसोरशिया अनुसंधान के लिए रा.कृ.अनु.प की सक्षमता में निश्चित ही वृद्धि हुई है। इसके द्वारा एन.ए.आई.पी द्वारा अनुमोदित कई उपपरियोजनाओं के विकास में तथा अब परियोजना प्रबंधन एवं विभिन्न उप परियोजनाओं के साझेदारी सहभागियों के गतिविधियों में भी सहयोग दिया जा रहा है।

राष्ट्रीय कृषि अनुसंधान पद्धति (एन.ए.आर.एस) में बौद्धिक संपदा प्रबंधन की संस्थानीयता : शिक्षा एवं सक्षमता निर्माण एवं अन्य परियोजनाओं की अनुसंधान उपलब्धियों से, एन.ए.आई.पी के तहत बीपीडी एककों एवं भा.कृ.अनु.प संस्थानों के आई.टी.एम.यू में प्रौद्योगिकी वाणिज्यिकरण तथा बौद्धिक संपदा प्रबंधन के संस्थानीयता के लिए प्रशिक्षण कार्यक्रमों में प्रभावी अभिकल्प हेतु सहायता मिली है। नार्म के संकाय सदस्यों द्वारा रा.कृ.अनु.प को अनुसंधान के वाणिज्यिकरण अभिमुखीकरण एवं बौ.सं.अधिकार में भा.कृ.अनु.प, आई.टी.एम.यू एवं बी.पी.डी एककों की प्रक्रियाओं के संस्थागतता में जागृति पैदा की गई।

रा.कृ.अनु.प में ई-शिक्षा की संस्थागतता : अकादमी द्वारा ई-शिक्षा संस्थागतता के लिए विषयवस्तु एवं शिक्षा प्रबंधन एवं सक्षमता निर्माण रणनीति के लिए नक्शा,

ओपन स्रोत साफ्टवेयर (मूडल) विनियोग के विकास में राज्य कृषि विश्वविद्यालय एवं भा.कृ.अनु.प के समविश्वविद्यालयों में एन.ए.आई.पी द्वारा ई-शिक्षा अभिपहल के कार्यान्वयन की रफ्तार बढ़ाई गई।

भा.कृ.अनु.प/ कृषि अनुसंधान सेवा बोर्ड परीक्षाएँ : नार्म द्वारा पीएच डी शोध अध्ययन के शिक्षावृत्ति के लिए विद्यार्थियों के चयन हेतु दिसंबर 12, 2010 को अखिल भारतीय स्तर की प्रतिस्पर्धात्मक भा.कृ.अनु.प वरिष्ठ अनुसंधान फेलो (एस.आर.एफ) परीक्षा (2010) सफलतापूर्वक आयोजित की गई। यह परीक्षा 202 शिक्षावृत्तियों के लिए 13 कृषि एवं संबद्ध विद्या विषयों में देश के 11 केंद्रों में आयोजित की गई। नार्म द्वारा सितंबर 19, 2010 एवं नवंबर 28, 2010 को क्रमशः हैदराबाद केंद्र में कृषि वैज्ञानिक अनुसंधान बोर्ड की कृषि अनुसंधान सेवा (ए.आर.एस) की प्राथमिक एवं मुख्य परीक्षाएँ आयोजित की गई। कुल पंजीकृत 176 अभ्यर्थियों में मुख्य परीक्षा के लिए केवल 148 अभ्यर्थी ही उपस्थित थे।

खेलकूद : केंद्रीय शुष्क क्षेत्रीय अनुसंधान संस्थान जोधपूर, राजस्थान द्वारा नवंबर 9-13, 2010 के दौरान आयोजित अखिल भारतीय कृषि अनुसंधान परिषद (भा.कृ.अनु.प) के अन्तर क्षेत्रीय खेलकूद प्रतियोगिता में नार्म के खेलकूद दल को सर्वोत्तम विजयी दल पुरस्कार से सम्मानित किया गया।

राजभाषा पुरस्कार: अकादमी को वर्ष 2009 के लिए 'ग' क्षेत्र में भा.कृ.अनु.प. संगठनों में उत्तम राजभाषा (हिंदी) कार्यान्वयन के लिए राजर्षि टंडन राजभाषा पुरस्कार प्राप्त हुआ है। डॉ.पी.के.जोशी, निदेशक, नार्म ने यह पुरस्कार जुलाई 16, 2011 को माननीय कृषि मंत्री, श्री शरद पवार जी के करकमलों से प्राप्त किया।

Executive Summary

The thrust of the Academy's activities in 2010-11 was on three broad fronts: (i) capacity building, (ii) research and policy support and (iii) post graduate education, in accordance with the long term vision for NAARM, and the approved strategy for the XI Five Year Plan.

Capacity building: Three Foundation Courses for Agricultural Research Service (FOCARS) were organized in which 158 newly-recruited ARS probationers successfully completed their training at the Academy. Twenty eight senior-level training programmes, which included Management Development programmes, and Workshops were organized for 742 mid-career and senior professionals of NARS. These programmes covered the following themes: Leadership development for promoting agricultural innovation; Developing winning research proposals; Priority setting and monitoring and evaluation of research; Geospatial knowledge management; Multimedia content development; Developing e-learning systems; Intellectual property management and technology licensing; data analysis with SAS; seed management; Administrative and financial management; Labour related laws; and others. Three Management Development Programmes and one Executive Development Programme were also conducted for the newly recruited Heads of Divisions, Project Coordinators, Zonal Coordinators and Principal Scientists from ICAR and Directors of Research from SAUs. The Academy organized four customized off-campus programmes in specialized areas, on request, at institutions of NARS in which 140 professionals were trained. In all, nearly 1682 professionals participated in 50 capacity building programmes organized by the Academy during the year.

Further, under the Learning and Capacity Building project of NAIP, faculty of NAARM facilitated the training of about 320 professionals from ICAR, SAUs, and Agribusiness and NGO sectors in three partner institutions, namely, IIM Lucknow, MANAGE and NIRD. In addition, NAARM also facilitated the

international training of nearly 200 scientists of NARS in frontier areas of science in globally leading universities and institutions, through the Learning and Capacity Building project of NAIP.

Research and policy support: 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. Key outputs for 2010-11 are:

- Revised proforma for Annual Assessment Report for scientists of ICAR
- Database on higher education agricultural manpower availability and forecasts of manpower demand up to 2020
- Strategy and roadmap for capacity building in developing e-learning systems in NARS and development of 60 e-learning courses in management related areas
- Conceptual models for managing organizational change, performance assessment and organizational citizenship behaviour
- Framework and methodology for mapping innovation performance and research quality
- Online training evaluation system
- Case studies on assessment of value chains of agricultural commodities and institutional arrangements across the chains
- Assessment of status of IP protection in agricultural engineering and fisheries research
- IP landscaping of Bt cotton in India
- Database and GIS of GI products in agriculture
- Valuation of biodiversity in biotechnological inventions

- Databases of nanotechnology patents and bibliographic sources of relevance to agriculture and assessments of nanotechnology applications in precision agriculture, disease diagnostics and agri-nanobiotechnology
- NAARM Geospatial Library (NGSL) for delivering spatial and attribute data of relevance to agricultural research, education and technology transfer (for the State of Andhra Pradesh)
- Geospatial Village Knowledge Management System for application in village knowledge centres to support decision making by rural communities

The research by faculty of NAARM has led to nearly 39 publications in peer reviewed national and international journals, 6 books, 11 book chapters and 52 other types of publications and presentations.

The policy interaction workshops, conferences and seminars conducted at the Academy provided a platform for dialogue for Indian and developing country NARS on several issues of concern for national and international policy in agriculture. These included workshops on Agribusiness knowledge exchange, use of fly ash in agriculture, redesigning agricultural extension in India, leadership development in NARS, small holder livelihoods, manpower planning for agriculture, and prospects for nanotechnology in agri-value chain. All workshops led to valuable recommendations for implementation by NARS. In all, 12 policy interaction workshops/conferences were organized at the Academy with participation by over 500 professionals from public and private institutions of NARS.

Education: 20 students were admitted to the second batch of the Post Graduate Diploma in Management (Agriculture) in July 2010. The selection process included an all India test conducted in March 2010 followed by group discussion and personal interview in May 2010. Summer internships with industry were organized for the first and second batches. The first batch graduates in April 2011. All students of the graduating batch have been placed successfully in reputed organizations. Admission process for the third batch has been initiated. An important initiative in this context is the introduction of a new

all India Joint Entrance Test for Agribusiness Management (JET-ABM, 2011), conducted jointly by the three national institutes of management under the Ministry of Agriculture, Government of India, namely, NAARM, MANAGE, Hyderabad and NIAM (Jaipur).

Another land mark in Post Graduate Education at NAARM is the MoU signed with the University of Hyderabad to offer the one-year Post Graduate Diploma in Technology Management in Agriculture (PGDTMA) in Open Distance Learning (ODL) mode. The diploma will be awarded jointly by the two institutions. 128 students have been admitted to the first batch (2011) of PGDTMA. These include a number of executives from the industry and Academia, besides students pursuing PG studies and others.

National Consultation on role of NAARM in future R&D perspectives: The high level national consultation meet was organized on Jan. 6 and 7, 2011 at the Academy. The purpose was to strengthen the Academy and reorient its programmes in the context of the rapidly changing national and global scenario for agriculture. The meet was attended by the senior executives of ICAR who included the Director General, ICAR; Chairman and Member of ASRB; National Director, NAIP; DDGs of Education, Crop Sciences, Animal Sciences, Horticulture, Engineering and Extension Divisions of ICAR; Directors of selected ICAR Institutes; and ADGs of Education, IPR and Fisheries. The existing programmes of NAARM were reviewed and recommendations were made specifically with respect to: (i) redesigning and restructuring the Foundation Course for the new entrants to ARS, (ii) introduction of new programmes for leadership development, refresher courses for mid career scientists, orientation programmes for scientists recruited laterally into the ARS, retreat programs for senior managers of ICAR and SAUs; (iii) continuing the Post Graduate Education programmes and introduction of new programme on research management in distance mode; (iv) introduction Chair Professorships and ICAR National Professor at the Academy and (v) strengthening NAARM by increasing its cadre strength to 75 and introducing a new organizational structure with three Joint Directors and six Divisions.

The 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 was formed on April 7, 2010. AKC has organized a national workshop on Agribusiness Knowledge Exchange, a specialized course on Seed Management, and provided cabin space to five companies at NAARM. The AKC has also successfully developed a Knowledge Exchange Portal, located at <http://www.akcnaarm.com>.

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.

Other activities

NAIP help desk: The help desk established at NAARM under the L&CB project and the concurrent training programmes on research proposal development have enhanced the capacity of NARS for public-private consortia research. It has supported the development of the majority of sub-projects approved by NAIP and now provides support in project management and reporting activities to the partners of the various sub-projects.

Institutionalization of Intellectual property management in NARS: The research out puts from the L&CB and other projects have led to more relevant and effective design of training programmes for institutionalization of intellectual property management and technology

commercialization in ITMUs in institutions of ICAR, and BPD units set up under NAIP. The faculty of NAARM have participated extensively in the sensitization of NARS to IPRs and market orientation of research, and subsequently in capacity building for institutionalization of processes in ITMUs and BPD units of ICAR.

Institutionalization of E-Learning in NARS: The Academy enabled acceleration of implementing e-learning initiatives by NAIP in SAUs and DUs of ICAR by developing a roadmap, open source software (MOODLE) adoption for content and learning management, and capacity building strategies for institutionalizing e-learning. The Academy has trained over 500 personnel so far in developing e-learning systems in five disciplines- veterinary, dairy, fisheries, horticulture and home science. and SAUs/DUs which led to the establishment of 10 e-learning websites in various Universities across the country

ICAR/ASRB examinations: NAARM successfully conducted the all-India competitive ICAR Senior Research Fellow (SRF) examination (2010) on Dec. 12, 2010 for selecting the students for fellowship to pursue their Ph. D studies. The examination was conducted at 11 centres across the country in 13 agriculture and allied disciplines for 202 fellowships. NAARM also conducted Agricultural Scientist Research Board's Agricultural Research Service (ARS) preliminary and main exams at Hyderabad centre on Sept. 19, 2010 and Nov. 28, 2010 respectively. Out of 176 candidates registered, 148 appeared for the main exam.

Sports: The sports contingent of NAARM won the Best Winning Team Award in the Inter-Zonal Sports Tournament of All India Indian Council of Agricultural Research (ICAR) organized by Central Arid Zone Research Institute at Jodhpur, Rajasthan during Nov. 9 to 13, 2010.

Rajbhasha Puraskar: The Academy received Rajshri Tandon Rajbhasha Puraskar for excellent implementation of Official Language (Hindi) implementation among the ICAR organizations in region "c" for the year 2009. Dr P.K. Joshi, Director, NAARM received the Award from Hon'ble Minister for Agriculture, Mr Sharad Pawar at New Delhi on July 16, 2010.

NAARM - An Overview

The National Academy of Agricultural Research Management (NAARM) was established in 1976 with the mandate to enhance the performance and effectiveness 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 by initiating new processes of institutional change that reflect the national and global trends as well as expectations of the society at large from agriculture. 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 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.

Up to the XI Plan, the focus of the Academy's activities was mainly on training and research. However, to continuously innovate, and efficiently and effectively serve its clientele in the emerging era, 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 in Agricultural Management, offering courses at both post-graduate as well as doctoral level.
- (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

“By the year 2025, the Academy will emerge as India's premier institute of excellence in the field of agricultural management, known and sought nationally and globally for its expertise in management of agricultural education, research, training, consultancy, public policy programmes and agri-business, and will contribute significantly to promote the sustainable growth and development of agriculture”.

Mission

“Committed to promote professionalism in the management of agricultural education, research and extension programmes and agri-business, and enhance the efficiency, responsiveness, and performance of the National Agricultural System (NAS)”.

Mandate

The Academy is mandated to enhance the efficiency and effectiveness of NARS through:

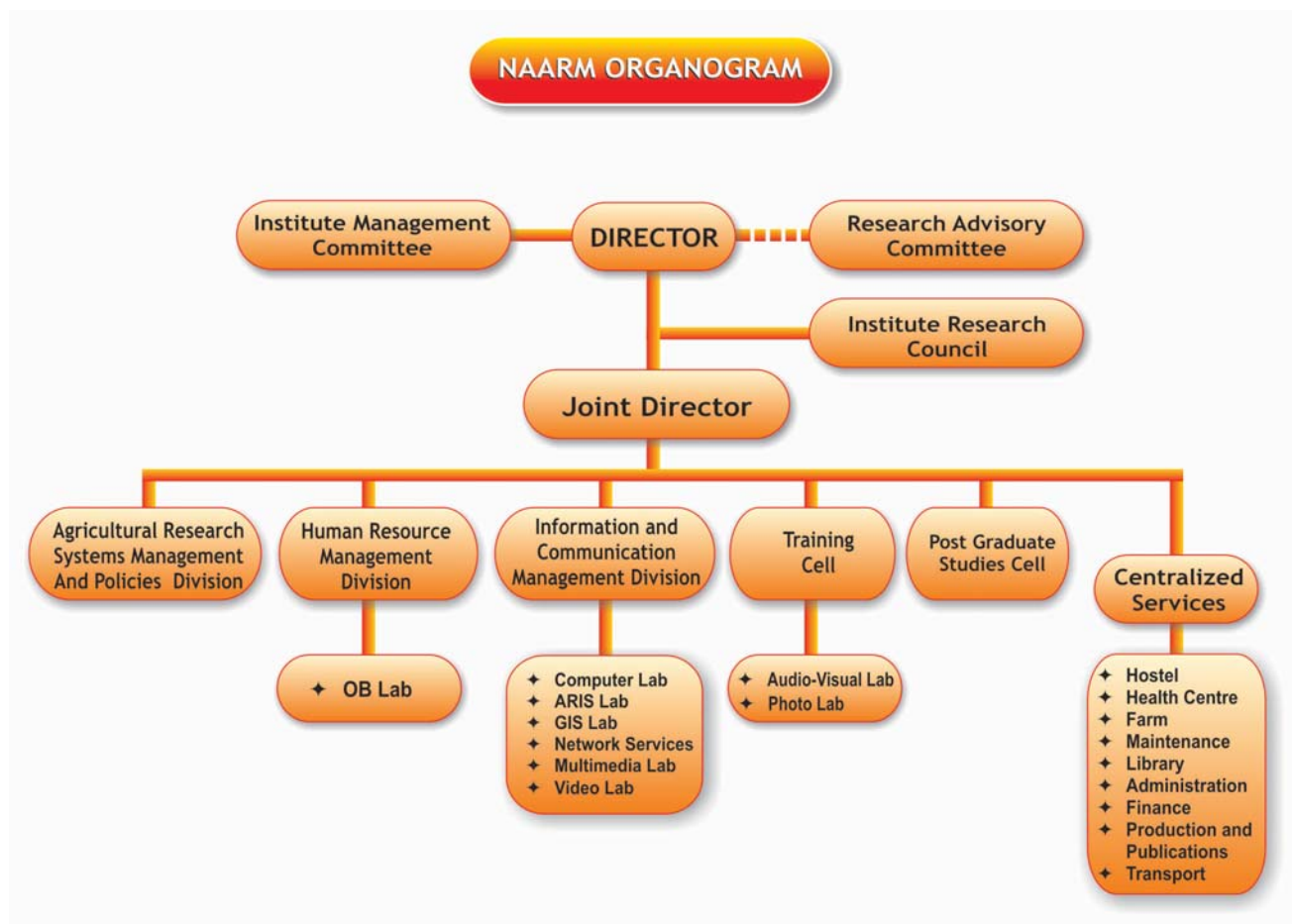
- To be an integrated institution of agricultural management focusing on creation, dissemination and application of knowledge through its education, training, research, consultancy and policy support programmes
- To serve as an apex resource center for collection, compilation, documentation and dissemination 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
- 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 programs;
- 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 Director leads the Academy supported by Joint Director, faculty and a number of technical and administrative personnel. The following organogram of NAARM, details the organizational structure of the Academy:

Objectives

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



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

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 with access both in class rooms and hostels, 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 (Cera) in agriculture, NAARM has direct 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 design and development
- Offset printing
- Information search and retrieval
- Organizational behaviour
- Patent search

Human and Financial Resources

Human Resources (as on 31.03.2011)

SI.No.	Category Posts	Sanctioned Strength	Filled Positions	Vacant Strength
1.	Scientific	43	25	18
2.	Technical	51	41	10
3.	Administrative	50	38	19
4.	Supporting	39	38	01
	Total	183	142*	48

* Excess staff in position consequent upon cadre review

Budget Allocation and Expenditure during the Year 2010-2011

Expenditure Statement - Non-Plan (as on 31.03.2011)

(Rs in Lakhs)

Sl.NO	Head of Account	R.E. 2010-11	Expenditure upto 31.3.11
I	Capital	20.00	19.99
	Sub-Total (A)	20.00	19.99
II	Revenue		
1.	(a) Esst. Charges Including LSP & PF	808.24	807.84
	(b) Wages	78.59	78.18
	(c)OTA	0.51	0.51
2.	Travelling Allowance	8.50	8.48
3.	Other charges including equipment	276.92	276.82
4.	Works		
	1. Maintenance & Repairs		
	a) Office Buildings	14.00	14.00
	b) Residential Buildings	7.00	6.99
	2. Minor Works	7.00	7.00
5.	Pension & Other Retirement Benefits	119.07	118.55
6.	Loans & Advances	3.00	3.00
	Sub-Total (B)	1322.83	1321.36
	Grand Total (A+B)	1342.83	1341.36

Expenditure Statement - Plan (as on 31.3.11)

(Rs in Lakhs)

SL.NO	Head of Account	R.E. 2010-11	Exp. upto 31.03.11
1.	Establishment	233.00	232.96
2.	Travelling Allowance	50.00	50.00
3.	H.R.D	4.00	3.99
4.	Other Charges	85.00	84.89
5.	Equipment	170.00	170.00
6.	Information Technology	75.00	75.00
7.	Furniture & Fixtures	19.00	18.99
8.	Books & Journals	54.00	53.98
9.	Works	910.00	910.00
	Total	1600.00	1599.81

Resource Generation

i) Off-campus and Sponsored Programmes 2010-11

(Rs. in lakhs)

1.	Faculty Development Programme	College of Veterinary & Animal Sciences, Parbhani	148023
2.	Training programme for Technical Category	IARI, New Delhi	233946
3.	Training programme for Technical Category (above T-5)	IARI, New Delhi	165257
4.	Training programme on E-Learning for NDRI and AAU Faculty	NDRI, Karnal	255000
5.	Training Programme on Winning Research Proposals for CSB Scientists	Central Silk Board, Bangalore	300000
6.	Training on IP Management and Commercialization of Technologies	CCSHAU, Haryana	172729
7.	Foundation Training Programme for CSB Young Scientists on IPRs	Central Silk Board, Bangalore	442900
8.	Training Programme on Agricultural Research Management	Junagadh Agricultural University, Junagadh	186407
9.	Experimentation and Publication of Agrl. Research for Reliance Life Sciences	M/s.Reliance Industries Ltd., Reliance Life Sciences Division Hyderabad	104823
10.	Multimedia Applications in e-content Development for the faculty of Dairy Technology	NDRI, Karnal	268691
	Total amount generated		22,77,776

ii. Education Programmes (as fees)

Sl.No.	Name of the programme	Amount (Rs. in lakhs)
1.	PDGMA (2009-11) II year	55.99
2.	PDGMA (2010-12) I year	68.63
3.	PGDTMA (2011-12)	15.26

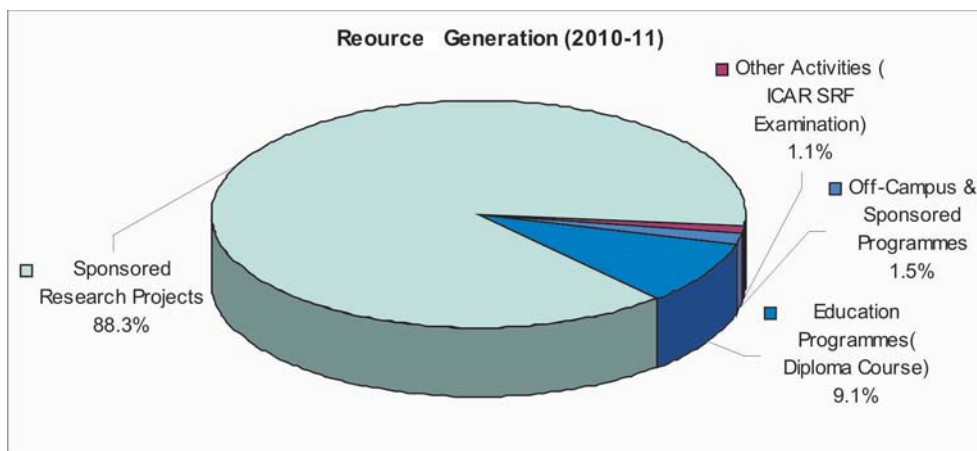
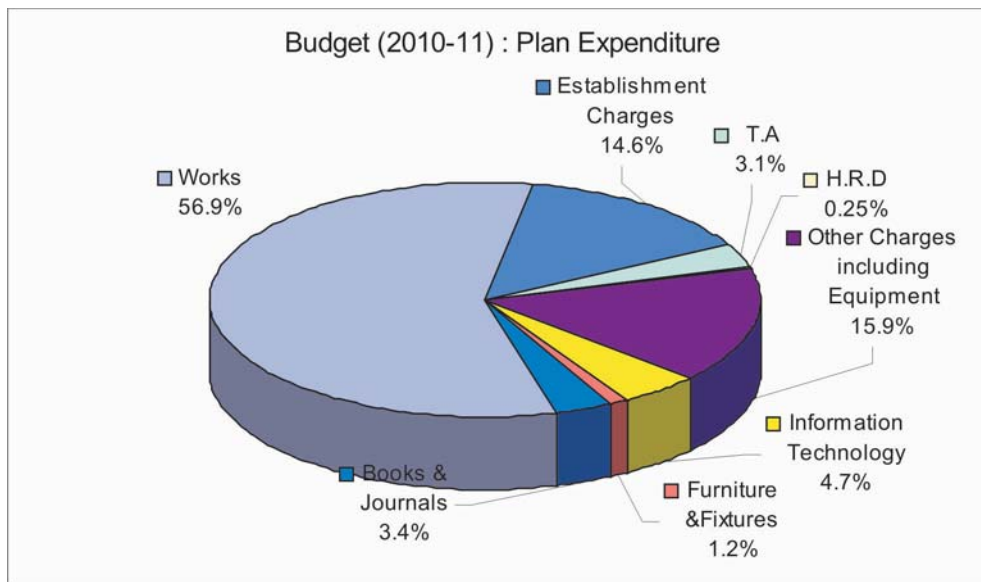
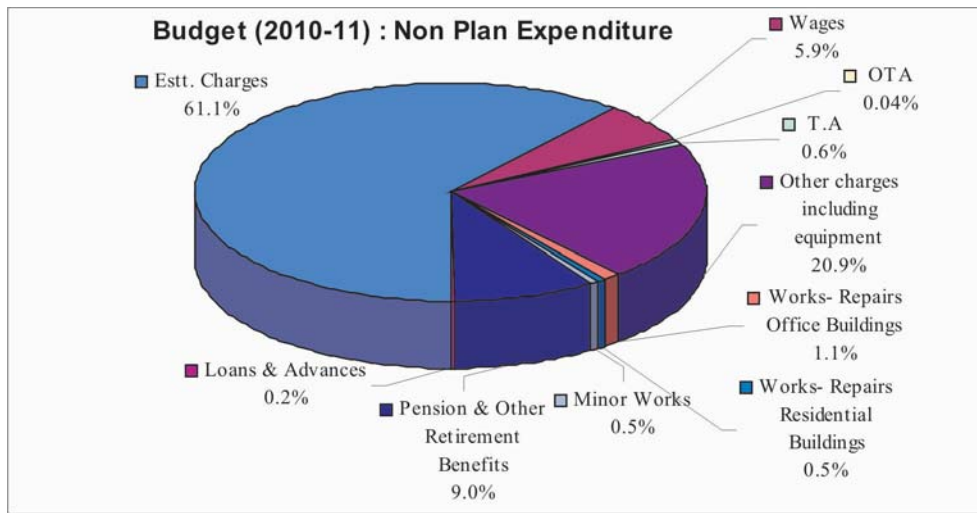
iii) Resource Generation from other activities

Sl.No.	Name of the programme	Amount (Rs. in lakhs)
1.	ICAR SRF Examination	17.30
2.	Revenue Receipts	95.40
	Total	112.70

iv. Resource Generation through Sponsored Research Projects

Sl. No.	Name of the Project	Amount released/available in 2010-11 till 31.03.11 (Rs.in lakhs)
1.	Learning & Capacity Building (L&CB)	1241.34
2.	Visioning, Policy Analysis and Gender (V-Page)	4.12
3.	Re-designing the farmer-extension agricultural research education continuum in India with ICT-mediated knowledge management (ICT-KM)	13.18
4.	Agroweb Digital Dissemination System for Indian Agricultural Research (ADDSIAR)	8.64
5.	Assessment of Future Human Capital Requirement in Agriculture (AFHCRA)	31.80
6.	Strengthening Statistical Computing for NARS (SASNARS)	23.41
7.	Developing, Commissioning Operating and Managing an Online System for NET/ARS-Prelim Exam by ASRB (Online NET/ARS)	32.45

Budget (2010 – 11)



Capacity Building

NAARM organizes capacity building programmes for the benefit of research managers, scientists, teachers, technical, administrative and finance personnel in the National Agricultural Research System (NARS). The various programmes organized at the Academy during 2010-11 are summarised below:

Sl.No.	Type of Programmes	No. of Programmes	No. of Participants
1	Foundation Course for Agricultural Research Service	3	158
2	Senior-level Programmes	28	627
3	Executive Development Programme	1	15
4	Off-campus Programmes	4	140
5	Workshops / Seminars / Conferences	15	742
	Total	50	1682

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 2010-11, three programmes were organized.

Sl. No.	Title	Duration	No. of Participants	Course Directors
1	90 th FOCARS	April 20 - Aug. 17, 2010	44	V.K.J. Rao D. Rama Rao
2	91 st FOCARS	May 11 - Sept. 7, 2010	38	N. Sandhya Shenoy P. Manikandan
3	92 nd FOCARS	Sept. 1 - Dec. 29, 2010	76	K.H. Rao K. Srinivas

The Foundation Course is of 120-days duration and organized in three phases. Phase 1 and 3 were conducted at the Academy. During Phase 2, the trainees were sent to rural areas across the country. 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 centres of ICAR institutes/agricultural universities / KVKs, wherein they interacted with farmers, extension agencies, input supplying 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 focussed 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.

2. Senior-level 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 and administrative and finance and accounts officers from NAIP consortia, ICAR institutes, and agricultural universities participated in these training programmes. The various senior-level programmes organized during the year are listed below:

Sl. No.	Title	Duration	No. of Participants	Programme Director(s)
01	Developing Winning Research Proposals in Agricultural Research	April 22-27, 2010	20	J. Challa D. Rama Rao
		Nov. 8-12, 2010	18	D. Rama Rao J. Challa
02	IT-based Decision Support Systems for E-learning Content Management	June 2-8, 2010	18	G.R.K. Murthy K.M. Reddy
03	Data Analysis using SAS	June 28 to Aug. 2, 2010	29	M.N. Reddy A. Dhandapani
		Sept. 15-21, 2010	18	A. Dhandapani M.N. Reddy
		Nov. 24-30, 2010	26	G.P. Reddy M.N. Reddy
		Dec.13-18, 2010	21	M.N. Reddy A. Dhandapani
		Jan.19-25, 2011	26	M.N. Reddy A. Dhandapani
		March 21-26, 2011	20	A. Dhandapani G. P. Reddy
04	Technical and Administrative Support for Consortia-based Research in Agriculture	June 16-22, 2010	34	S.K. Soam R.V.S. Rao
05	Training Programmes on Establishment and Financial Matters	July 12-21, 2010	32	Ashish Roy B.S. Sontakki
		Sept.13-22, 2010	42	Sanjay Kant
		Nov.15-24, 2010	34	Sanjay Kant

Sl. No.	Title	Duration	No. of Participants	Programme Director(s)
06	Decision Support Systems for Geo-spatial Knowledge Management for Sustainable Rural Livelihoods Security	Aug.17-27, 2010	12	M.N. Reddy N.H. Rao
07	Specialized Course on Seed Management	Sept. 23-25, 2010	18	D.S.K. Rao D. Rama Rao S.K. Soam
08	IT-based Decision Support Systems for Digital Content Development	Oct. 5-15, 2010	15	N. Sandhya Shenoy V.K.J. Rao
09	E-learning and Content Management	Oct.19-29, 2010	17	D. Rama Rao G.R.K. Murthy
10	Developing Winning Research Proposals in Sericulture for Silk Board Scientists	Oct. 28-Nov. 3, 2010	30	J. Challa
11	Employer's Perspective on Labour-related Laws in ICAR	Nov.11-13, 2010 Feb.17-19, 2011	26 30	Sanjay Kant B.S. Sontakki
12	IP Management and Commercialization of Agricultural Research	Dec. 14-21, 2010	12	R. Kalpana Sastry S.K. Soam
13	Foundation Training for Young Scientists of Central Silk Board	Jan. 4-18, 2011	25	S.K. Soam R. Kalpana Sastry
14	IPR and Technology Licensing in Agriculture	March 2-11, 2011	22	S.K. Soam R. Kalpana Sastry
15	Multimedia Applications in e-Content Development	March 22 to April 02, 2011	16	K. M. Reddy V.K.J. Rao

Developing Winning Research Proposals in Agricultural Research

In a rapidly changing agricultural scenario, scientists in National Agricultural Research System (NARS) need to sharpen their skills to prepare effective research proposals that can fetch external funding for specific research efforts in the light of increasing competition for scarce research resources. To develop skills for writing winning research proposals that can attract more funds from donors focusing on the needs of the stakeholders, and to give practice in writing various components of a research proposal, two training programmes on Developing Winning Research Proposals were organized under

Learning and Capacity Building (L&CB) project of National Agricultural Innovation Project (NAIP). These programmes laid emphasis on various tools and techniques in research programme planning, and how to develop winning research proposal including budget estimate, etc.

Another sponsored training programme on Developing Winning Research Proposals in Sericulture was organized for the scientists of the Central Silk Board. The participants were sensitized on the use of *log frame* and Project Evaluation and Review Technique (PERT) in research programme planning along with practice in writing various components of a research proposal.

IT-based Decision Support Systems for E-learning Content Management

The advent of worldwide packet networks, optical disks and other mass storage devices, interactive digital video, imaging, digitizing, scanning, and other computer graphic technologies have paved the way for development of multimedia. To develop an understanding and appreciation of use of multimedia in e-learning and knowledge management, a training programme on IT-based Decision Support Systems for E-learning Content Management was organized under NAIP. The



programme exposed the participants to digitizing, synthesizing, animating and packing images, sound, graphics, videos and text for both web and CD-based presentations, and familiarized them with multimedia production tools in various categories to enable them to develop their own modules for e-learning.

Training Programmes on SAS

Six training programmes on SAS were conducted by the Academy under the NAIP project "Strengthening of Statistical Computing for NARS". The statistical software, SAS(R) was distributed to nodal officers along with installation manuals to the partner institutes. One training programme was exclusively organized for the nodal officers on installing SAS software under different scenarios. They were also trained on various procedures available in SAS so that they have a comprehensive understanding and expertise in using SAS, and they can in turn train other researchers in their institutes. Other five training programmes on Data Analysis using SAS covered the use of SAS for different statistical

analyses such as design of experiments, regression, time series analysis, multivariate techniques, non-linear and statistical genetics, etc.

Technical and Administrative Support for Consortia-based Research in Agriculture

The technical, finance and administrative personnel play an important role in improving the efficiency of research programmes across NARS. A training programme on Technical and Administrative Support for Consortia-based Research in Agriculture was organized to sensitize and enhance the



understanding of the technical and administrative staff of NARS about the consortia mode of research under NAIP. The programme also aimed to develop personality, skills and competency of the participants that would help in enhancing their effectiveness in supporting the activities under NAIP.

Training Programmes on Establishment and Financial Matters

Three ICAR-sponsored training programmes on Establishment and Financial Matters were organized to orient the administration and finance personnel for role change in the changing context of



agriculture in the country and their responsibility towards the system. The programme dealt with need for changes in attitude, mindset and work culture; conduct rules and disciplinary matters CCS(CCA) rules; rules and bye laws of ICAR; Right to Information Act 2005; scientist-administrator-finance interface; budgeting and analysis of financial statements; communication skills; stress management, etc. Eminent resource persons were drawn from ICAR, University of Hyderabad and AG office, Hyderabad apart from NAARM faculty for these programmes. Study tours were also organized to different ICAR institutes located in Hyderabad, Bengaluru, Cochin and Kolkatta.

Decision Support Systems for Geo-spatial Knowledge Management for Sustainable Rural Livelihoods Security

The Sustainable Rural Livelihoods (SRL) framework provides the base to assess rural livelihood systems. To understand the concepts of spatial database design and management and their applications in agriculture, as well as to integrate the sustainable



livelihoods framework and participatory rural GIS for knowledge management and community decision-support, an ICAR-sponsored training programme on Geo-spatial Knowledge Management for Sustainable Rural Livelihoods Security was organized. The programme introduced case studies on GIS-based decision support systems for sustainable livelihoods security, and training modules along with hands-on experience of GIS software and hardware. The programme was organized in four modules, namely: Database and GIS concepts and practice; Remote sensing and image processing concepts and practice; Sustainable livelihoods framework concepts and

participatory GIS; and Case studies of geo-spatial knowledge management for sustainable livelihoods security.

Specialized Course on Seed Management

This course was conducted to impart knowledge, build bridges across sectors and major players; and to enhance the capabilities to deal with



contemporary issues in the management of genetic resources and seeds. The participants were exposed to the total agro-ecosystems related to seed supply systems along with a visit to a world-class seed production facility to acquaint them with the state-of-art production techniques. The training programme was organized by Agribusiness Knowledge Centre (AKC) of NAARM in association with Gyantech Info Systems consultants. It was attended by project coordinators and trainers from public and private seed companies; scientists from research institutes; seed analysts, testing officers, technologists, quality regulators and policy makers; central and state seed organization executives; central and state agriculture department officers; biotechnology company executives; NGOs and progressive farmers.

IT-based Decision Support Systems for Digital Content Development

Development of a multimedia-based web environment facilitates effective communication to support decision-making. There was a felt need to enhance the skills of agricultural research scientists in Information Technology (IT) based Decision Support Systems (DSS) for digital content development. Therefore, a training programme on IT-based Decision Support Systems for Digital Content Development was organized under Learning and Capacity Building (L&CB) project of NAIP. The main objectives were to: (i) sensitize the

participants on the role of ICTs for Decision Support Systems(DSS); (ii) orient the participants on the latest database management technologies and enhance their skills in making use of these tools; (iii) expose the participants on Participatory Geographic information Systems (PGIS) for decision support; (iv) facilitate the participants in generation of web based and multimedia based information modules; and (v) expose participants to e-learning modules preparation. DSS through developing core skills for database management, PGIS, multimedia, web design, e-learning and ICT networks for agribusiness development for production-consumption systems, and sustainable rural livelihoods assessment were covered during the training.

E-learning and Content Management

To bring awareness in E-learning and to build the capacity in content creation and management in teaching, research, and technology transfer activities, a training programme on E-learning and Content Management was organized for dairy science faculty members. The programme introduced content creation tools, web standards



for content and e-learning; and also basics of open source software in content management- software installation, course creation and administration, assignments, evaluation, grading and web hosting, and also software on online learning evaluation and monitoring. Seventeen faculty members from National Dairy Research Institute (NDRI), Karnal and Assam Agricultural University (AAU), Jorhat, participated in the training programme.

Employer's Perspective on Labour-related Laws in ICAR

To face the changing pattern of labour deployment vis-à-vis rules and statutory provisions, it is necessary to train the concerned officers in this area



to keep balance between work output of the organization and compliance with 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 ICAR-sponsored 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. Directors, Heads of administration, farm superintendents, farm managers and estate managers of ICAR institutes participated in this programme. Regional Labour Commissioner (Central) Mr P.M. Srivastava and his team extended full support in conducting this programme, and deliberated extensively on the various practical issues raised by the participants.

IP Management and Commercialization of Agricultural Research

A sponsored training programme on Intellectual Property Management and Commercialization of Agriculture was organized from Dec. 14 to 21, 2010. The programme was sponsored by CCS Haryana Agricultural University for its scientists to develop expertise in IPR issues. The programme aimed to create awareness on global and national perspectives on intellectual property management, geographical indications in agriculture, plant variety protection, translational research and commercialization with relevance to seed industry along with hands on experiences on patent search, patent drafting, etc. Several case studies were presented by the experts from both public and private agriculture sectors. Faculty members from CCS Haryana Agricultural University (HAU), Hisar, attended this programme.

Foundation Training for Young Scientists of Central Silk Board

A foundation training programme was organized for the newly recruited scientists of Central Silk Board (CSB). The main areas covered during the training programme were silk research and development system in India, personality development and team



work, communication and presentation skills, project management and research methodologies, frontier areas of research, IPRs, domestic and international trade regulatory measures, participatory technology development. The scientists belonging to Mulberry, Tasar, Eri and Muga research institutes of CSB were the participants.

Intellectual Property Rights and Technology Licensing in Agriculture

A training programme on Intellectual Property Rights (IPRs) and Technology Licensing in Agriculture was organized under Learning and Capacity Building (L&CB) project of National Agricultural Innovation Project (NAIP). The main objectives were to: (i) strengthen the knowledge of agricultural scientists in the area of IPRs with respect to national and international scenario; (ii) provide a technical forum for identifying and analysing the constraints and opportunity for strengthening IP system regime in NARS; and (iii) develop competency and technical skills in drafting the licensing contracts and agreements for effective technology commercialization. The programme content consisted of exposure to key elements of IP legislations in the country followed by operational aspects concerning patent filing and registration of plant varieties. Freedom to Operate (FTO) analysis, case studies discussion, sharing of licensing

documents, development of licensing templates for the ready to launch products of the participating institutions, negotiating with the potential partners are few major contents of the programme. International faculty, Dr Sita S. Pappu, from Washington State University, USA, was the key resource person. Padmasri Dr E.A. Siddiq delivered the valedictory address.

Multimedia Applications in e-Content Development

A training programme on Multimedia Applications in e-Content Development for the faculty of dairy technology was organized. The programme introduced the tools and techniques used in multimedia and emphasized on working with Adobe Flash, Photoshop, Director and DreamWeaver. The participants were given hands-on experience on audio and video capturing, editing, content management standards, storey boarding, coreldraw, introduction to LMS, etc. Faculty members of National Dairy Research Institute (NDRI), Karnal attended this training programme.

3. Management Development Programmes and Executive Development Programme

The Academy offers Management Development Programmes (MDPs) to Heads of divisions, project coordinators, zonal coordinators and principal scientists from ICAR and directors of research from state agricultural universities. Three MDPs were organized during the year:

Title	Duration	No. of participants	Programme Directors
Management Development Programmes in Agricultural Research	July 22-27, 2010	20	J. Challa K.H. Rao
	Dec. 2-7, 2010	18	J. Challa K.H. Rao B.S. Sontakki
MDP on Leadership for Transition of Agricultural Research System	March 3 to 5, 2011.	08	R. V. S. Rao and P. Manikandan

Management Development Programmes in Agricultural Research

Two Management Development Programmes in Agricultural Research were organized to (i) develop middle level management competencies in the organizational set-up of research institutions; (ii) appraise on issues of administration and financial management; (iii) sensitize on the legal and vigilance issues of people at work; and (iv) develop insights into human resource development initiatives and strategies for agricultural research. These programmes were structured around three themes namely, human resource development, administration and financial management, and legal and vigilance issues of people at work. These programmes were sponsored by ICAR.

MDP on Leadership for Transition of Agricultural Research System

An understanding of the traits, motives and characteristics of great leaders is required to develop capable and competent leaders and charismatic personalities. The ability to lead is, thus, an important skill in management of organizations. It is essential to hone this skill in order to succeed as a facilitator, especially when leading knowledge people. Hence, 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, a Management Development Programme on Leadership for Transition of Agricultural Research System was organized.

Executive Development Programme

Title	Duration	No. of participants	Programme Director
Agricultural Research Management	Sept. 17-21, 2010	15	J. Challa



As a part of the Academy's endeavour towards promoting learning and capacity building of the NARS, 12th Executive Development Programme in Agricultural Research Management was organized. The programme was designed for conceptual awareness and competency building 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. The programme aided the delegates to develop a visionary approach towards perspective planning for their research institutes, and included various aspects concerning value of research output and outcome vs. investments, accountability and scientific aspirations of scientists towards a common objective in research institutes and their visibility. The programme was structured into interactive sessions by in-house and guest faculty, case analysis, and presentations. Directors and Joint Directors of ICAR institutes, Assistant Directors General of ICAR, Deans from Agricultural Universities took part in the programme.

4. Off-campus Training Programmes

The Academy organizes customized off-campus programmes in specialized areas, on request from research and educational institutions in NARS at their location. During 2010-11, the Academy organized the following off-campus programmes:

Sl. No.	Title	Duration	No. of Participants	Programme Director(s)
01	Faculty Development Programme for Teachers of College of Veterinary and Animal Sciences (MAFSU), Parbhani	May 24-29, 2010	30	K.M. Reddy
02	Improving the Efficiency of Technical Personnel of IARI, New Delhi	July 26-29, 2010	40	P. Manikandan R.V.S. Rao
		July 30- Aug. 2, 2010	40	P. Manikandan
03	Off Campus training on Agricultural Research Management at Agricultural University, Junagadh	Feb 1-5, 2011	30	S.K. Nanda K. Srinivas

Faculty Development Programme at Parbhani, Maharashtra

An off-campus Faculty Development Programme was organized to orient the teachers to student-centred learning-teaching and improve teaching effectiveness; and also to familiarize them with latest tools and techniques in teaching. The training programme also intended to develop skills pertaining to stress management, communication, and classroom presentation, besides motivation. Assistant professors of the college of veterinary and animal sciences of Maharashtra Animal and Fisheries Sciences University (MAFSU), Parbhani, Maharashtra got benefited through this programme.

Specialized Training programmes for Improving the Efficiency of Technical Personnel

Two specialized short-term training programmes for improving the efficiency of technical personnel was organized at Indian Agricultural Research Institute (IARI), New Delhi. The major objective of these programmes 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. Various topics related to human

relations at workplace were covered in an experiential learning approach, with exercises and examples to bring about a change in the attitude of the technical personnel of IARI.

Training Programme on Agricultural Research Management

An off-campus training programme on Agricultural Research Management was organized at Junagadh Agricultural University (JAU), Junagadh to expose the participants on advances in agricultural research management and to acquaint with various tools and techniques of project management. Major themes deliberated in the training were research management processes, planning and execution; winning research proposals, prioritization of research, monitoring and evaluation of projects, constraints in research, interdisciplinary team building, research paper writing, WTO implications, SPS/TBT agreement, TRIPS and impact assessment. Dr N.C. Patel, Vice Chancellor, JAU inaugurated the programme and Dr C.J. Dangaria, Director of Research and Dean PG Studies welcomed the participants during the inaugural session. Pedagogy of the programme included lecture-cum-discussions, case analysis, group exercises. Thirty participants including 11 heads of division attended the programme.

Feedback on programmes organized by the Academy during 2010-11

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 ● 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 ● Both academic and infrastructure facilities provided by NAARM was good ● Good exposure to different areas were 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 materials ● 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 stores need to be incorporated.

Workshops

The Academy organized the following Management Development workshops and other workshops during 2010-11.

Sl No.	Title	Duration	No. of Participants	Programme Director(s)
01	Agribusiness Knowledge Exchange	April 22-24, 2010	67	N.H. Rao D. S.K. Rao
02	Orientation Workshop on SAS	June 16 and 17, 2010	30	M.N. Reddy A. Dhandapani
03	Policy Prioritization, Monitoring and Evaluation (PME) Support to consortia-based Research Projects in Agriculture (Under NAIP)	July 1-6, 2010	17	B.S. Sontakki G.P. Reddy
04	Monitoring and Evaluation Activities for CPIs and CCPIs of Component I Project of NAIP	July 5-6, 2010	32	D. Rama Rao
05	Leadership for Transition to NAIS (Under NAIP)	August 6-11, 2010	16	P. Manikandan R.V.S. Rao
06	Workshop of Fly Ash Project (Sponsored by DST)	Sept. 9, 2010	20	D. Rama Rao, NAARM Vimal Kumar, DST Alok Adoliya, TERI
		Sept. 27, 2010	30	D. Rama Rao S.K. Nanda
07	Hindi Mei Krishi Shodh Patra Lekhan Avam Prastuteekarn Kee Gunnavattata	October 29, 2010	40	S.K. Soam J. Renuka
08	Management of Stress Related Disorders	February 2-4, 2011	12	A. Debnath
09	Focus Group Discussions on Manpower Planning issues in Agriculture	March 27, 2010 March 29, 2010 May 28, 2010 July 5, 2010 Aug. 18, 2010 Nov. 20, 2010 Dec. 22, 2010 Jan. 18, 2011 Jan. 19&20, 2011 Feb. 5, 2011 Feb.15&16, 2011 Feb.17, 2011 Feb. 26, 2011	766	D. Rama Rao S.K. Nanda
10	Workshop on Prospects of Nanotechnology in Agri-value Chain	Feb. 22, 2011	41	R. Kalpana Sastry N.H. Rao

National Workshop on Agribusiness Knowledge Exchange

To conceptualize and put into operation, an Agribusiness Knowledge Centre, a Workshop on Agribusiness Knowledge Exchange was organized at the Academy from April 22 to 24, 2010 in collaboration with Gyantech Information Systems, Hyderabad. Mr Gopala Krishna (IAS Retd), former Principal Secretary, Government of Andhra Pradesh and Chairman, Andhra Pradesh State Finance Corporation chaired the inaugural session. Mr S. Sivakumar, CEO, Agribusiness Division of ITC graced



the occasion as the guest of honour. More than 60 invitees from agribusiness, input industry, processing sector, retail chain, infrastructure sector and academic, and consultancy experts along with the faculty of NAARM took part in the deliberations. The major recommendations of the workshop were: Agribusiness knowledge exchange and Agri-knowledge Centre to operate as early as possible as majority felt the need for such a knowledge initiative; develop operational agribusiness knowledge portal; and the knowledge services fees to be legally worded and communicated to the registrants..

Orientation Workshop on SAS

An installation training-cum-orientation Workshop on SAS was organized under the NAIP project titled "Strengthening of Statistical Computing for NARS" on June 16 and 17, 2010. The statistical software, SAS(R) purchased under the project by the lead institute, Indian Agricultural Statistics Research Institute (IASRI), was distributed to nodal officers along with installation manuals to the respective institutes. The nodal officers were trained on

installing SAS software under different scenario. Inaugurating the workshop, Dr N.H. Rao, Joint Director, NAARM has complemented IASRI for taking extra efforts in procuring high end statistical computing platform for NARS. Dr Rajendra Prasad, Head, Design of Experiments, IASRI, New Delhi and PI of the project, has asked the nodal officers to install the software in as many official machines as possible so that the software would be used by all those who need statistical computing facilities. The workshop was attended by 30 participants including 18 nodal officers from partner institutes under 'computing south zone hub' of the project.

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

An MDP workshop on Policy and Prioritization, Monitoring and Evaluation (PME) Support to Consortia-based Research in Agriculture was organized at the Academy under NAIP from July 1 to 06, 2010 to: (i) orient the participants to the concepts of PME in agricultural R&D; (ii) equip them with major techniques of PME in different areas of agricultural research and development; (iii) discuss empirical studies and to synthesize experiences in application of PME techniques; and (iv) 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 all the 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.

Monitoring and Evaluation Workshop

The 5th workshop on Monitoring and Evaluation (M&E) was organized at NAARM under NAIP on July 5 and 6, 2010 to orient the investigators to M&E activity, and also to discuss the issues pertaining to technical, operational and management of ongoing consortia projects with special focus on M&E. Forty officials including investigators of ongoing consortia projects, M&E consultants, senior officials from Project Implementation Unit (PIU) of NAIP (the National Director, National Coordinator, Director (Finance) and Under Secretary) and NAARM faculty participated in the workshop. During the inaugural session, Dr D. Rama Rao, Workshop Director, emphasized the need and importance of the workshop and the role of NAARM in support of NAIP activities. Dr U.K. Srivastava, M&E Consultant, gave a brief overview of NAIP, and presented the basic concept and objectives of M&E system; M&E information flow, sources and uses of data; design of PMTS and reporting formats for M&E; time frame for reporting and follow up studies of the M&E formats.

NAIP Workshop on Leadership for Transition to NAIS

It was felt necessary under National Agricultural Innovation Project (NAIP) that the researchers and teachers in the system have to be sensitized to the various issues of leadership to help them execute the various responsibilities under NAIP. NAIP has introduced “consortium” approach, which demands public-private partnership of service providers that collaboratively addresses production systems constraints. Appropriate leadership skills and attributes are, therefore, needed that could facilitate effective teamwork among the various members of the consortia project and foster research excellence for effective execution of NAIP components. A workshop on Leadership for Transition to NAIS was organized to explore the concept of leadership and the ways in which leadership is being exercised in the present; to develop personal effectiveness and leadership actions for the future; and to adapt ideas of leadership for successful management of change and innovation.

The workshop consisted of a blend of lectures, self-exploration exercises, case analysis, experiential learning, and group discussion. The workshop

provided an excellent opportunity for senior-level scientists and teachers from ICAR institutes, agricultural universities, and NGOs participated in the workshop.

Workshops on Use of Fly Ash in Agriculture

Two brainstorming workshops were organized by NAARM one at C-FARM on Sept. 9, 2010 and another at the Academy on Sept. 27, 2010 under the DST sponsored Fly Ash project to identify major issues pertinent to fly ash use in agriculture. Two workshops were attended by experts associated with fly ash research and development, production. The six broad themes identified in the brainstorming workshop are Multiple uses of fly ash in agriculture, Limits and negative impacts, Future research agenda, Communication & marketing, Policy framework and Institutional arrangements. These broad themes considered as a crux of the fly ash use in agriculture. These key issues formed basis for the experts' opinions through a Delphi survey. The broad issues that emanated from the deliberations were:

- Need for a directorate or national institute to coordinate fly ash work.
- Recommend policy options that would mandate the power plants to provide fly ash to farmers at their farm fields at no cost instead of giving subsidies.
- Need for long term research on fly ash use, its impact on soil, human and animal health.
- Need for wide publicity in all types of media to popularize and educate the stakeholders.
- Need to develop a status paper and bring that to the notice of agriculture ministry and planning commission members. It can be articulated as a means for sustainable agriculture development and food security with modest investment and through simple regulations.
- Need to evolve package of practices for use in variety of soils and crops. This may go along with training of stakeholders and trainers.
- Develop appropriate module for use in the agriculture curriculum.

Workshop on “Hindi Mei Krishi Shodh Patra Lekhan Avam Prastuteekaran Kee Gunnavattata”

A national workshop on 'Hindi Mei Krishi Shodh Patra Lekhan Avam Prastuteekaran Kee Gunnavattata' was organized on Oct. 29, 2010 to motivate scientists of ICAR to write research articles in Hindi, and also to



provide a common platform for scientists and official language officers to analyze the problems and opportunities regarding Hindi writing and presentations.

Key recommendations of the workshop were:

- ICAR should publish two research magazines keeping in view the importance of marks allotted on score card to Hindi articles as per the guidelines of the research methodology.
- The summary of published English research papers should necessarily be published in Hindi also.
- At least two Hindi research articles should be given space among the published English research articles by the ICAR and also societies which get benefit from ICAR.
- It was proposed to establish a National Agricultural Research Translation Bureau.
- Hindi publications which are utilized for higher agricultural education need to be strengthened. To enhance its importance, it was felt that the publication of the books in Hindi and other regional languages should also be attempted by ICAR and other institutes, with 75% of the royalty given to the authors.

Forty scientists and official language officers from various ICAR institutes participated in the workshop.

Workshop on Management of Stress Related Disorders

A workshop on Management of Stress Related Disorders was organized with major objectives (i) to develop in-depth understanding of the forces causing stress and its effects - physical, social and organizational; (ii) to understand the mechanism of occurrence of various stress related disorders - cardiac, hypertension, diabetes and other psychosomatic diseases; (iii) to develop constructive means for coping up with distress and achieve productive and enriched life-style. The workshop covered interactive sessions with - cardiologist for cardiac diseases and hypertension; orthopaedic surgeon for understanding stress related musculo-skeletal diseases; endocrinologist to understand various stress related endocrine and metabolic diseases including diabetes; neurologist to understand various neurological ailments due to stress; and dietician to understand the relation of stress and diet; and also practical coping up techniques. Senior managers like Directors, Joint Directors, Heads of Departments, Zonal Coordinators and Project Coordinators, CAOs and FAOs and Principal Scientists of ICAR; Heads of Departments and Associate Directors of Research, Registrars and Comptrollers of SAUs got benefited through this workshop.

Focus Group Discussions on Manpower Issues

The Academy has organized 13 Focus Group Discussions (FGDs) on specific themes of manpower issues in different sectors of agriculture. The main objective of these focus group discussions was to assess manpower requirement in sectors such as crop sciences, dairy science, agri-business, fisheries, horticulture, biotechnology, veterinary and animal husbandry, etc. These FGDs were conducted as a part of the NAIP sub-project titled “Assessment of future human capital requirements in agriculture”. The discussions were centered around several issues such as manpower requirements at farm level, manpower norms, manpower planning in rural areas, current skills gap and curriculum modification, electives, farm level requirements, management education, marketing/retail management, industry needs and

graduates enablement and capacity building through public private partnership.

- ♦ FGD on agri-business on March 27, 2010 at Agriculture Extension Institute, Gandhinagar
- ♦ FGD on Dairying on March 29, 2010 at Anand Agricultural University, Anand
- ♦ FGD on fisheries on May 28, 2010 at CIFE, Mumbai
- ♦ FGD on dairy sector on July 5, 2010 at NDRI, Karnal
- ♦ FGD on horticulture on Aug. 18, 2010 at IIHR, Bengaluru
- ♦ FGD on agri-economics on Nov. 20, 2010 at NAARM
- ♦ FGD on agribusiness on Dec. 22, 2010 at NAARM
- ♦ FGD on biotechnology on Jan. 18, 2011 at NAARM
- ♦ FGD on agriculture on Jan. 19 and 20, 2011 at TNAU, Coimbatore
- ♦ FGD on agriculture education in private colleges on Feb. 5, 2011 at Naigaon, Maharashtra
- ♦ FGD on agriculture education in private affiliated colleges on Feb.15 and 16, 2011 at Institute of Biotechnology, Baramati, Maharashtra
- ♦ FGD on agriculture on Feb.17, 2011 at NIAM, Pune, Maharashtra
- ♦ FGD on agri-statistics on Feb. 26, 2011 at NAARM

Project investigators, Drs D. Rama Rao and S.K. Nanda from NAARM, were instrumental in successfully organizing these FGDs at various locations.

Workshop on Prospects of Nanotechnology in Agri-value Chain

From the national agricultural growth perspective, it is necessary that application of nanotechnology may be extended across all the links of the agricultural value chain in the context of changing agricultural productivity, product quality, consumer acceptance and resource use efficiencies. Therefore, to provide a platform to engage diverse stakeholders who will deliberate on these questions and arrive at recommendations on key areas to prioritize investments in agricultural research, and to enable research partnerships, including public-



private partnerships in nanotechnology research and technology transfer across the agricultural value chain, this brainstorming workshop was organized as a part of the programme on “Assessing Interrelationships between Developments in Nanotechnology and Agriculture” under the Visioning Policy Analysis and Gender (V-PAGE) sub-project of the National Agricultural Innovation Project (NAIP). The workshop recommendations would lead to a systems approach to the nanotechnology initiative in agriculture in India, and develop a policy framework for institutionalizing this initiative in public agricultural research and innovation systems which can benefit all players in agri-value chain.

Policy Interaction Workshops

Sl. No.	Title	Duration	No. of Participants	Programme Directors
01	NAARM-IFPRI Workshop on Redesigning Agricultural Extension in India: Challenges and Opportunities	Aug.20-21, 2010	71	R.K. Samanta B.S. Sontakki P.K. Joshi
02	National Dialogue on Building Leadership in Agricultural Research Management: Concerns and Future Strategy (Jointly Organized by Trust for Advancement of Agricultural Sciences (TAAS), New Delhi and NAARM, Hyd)	Aug. 27-28, 2010	55	P.K. Joshi, P. Manikandan NAARM Dr R.S. Paroda, Chairman, TAAS
03	NAAS-NAARM-IFPRI Workshop on Livelihood Opportunities for Smallholders: Challenges and Prospects	Sept. 7-8, 2010	57	P.K. Joshi G.P. Reddy Ranjit Kumar
04	National Consultation on Role of NAARM in Changing R&D Perspectives	Jan 6-7, 2011	56	P.K. Joshi

NAARM-IFPRI Workshop on Redesigning Agricultural Extension in India: Challenges and Opportunities

The NAARM-IFPRI workshop on “Redesigning Agricultural Extension in India: Challenges and Opportunities” was organized during Aug. 201-21, 2010. Dr Abhijit Sen, Member, Planning Commission, Government of India, New Delhi inaugurated the workshop. The Guest-of-Honour on the occasion was Dr Kwadwo Asenso-Okyere, Director, Eastern and Southern Africa Regional Office, IFPRI.

The objectives of the workshop were to (i) identify key challenges and opportunities for agricultural extension to address emerging issues in food, agriculture and agri-business; (ii) document, analyze and synthesize experiences on public private partnerships in Indian agricultural extension system for mainstreaming the philosophy and

practices of multi-stakeholder partnerships; (iii) review innovative extension models and document lessons for up-scaling and institutionalizing; (iv) track global developments in agricultural extension and their implications for India; (v) evolve strategic options for linking public extension systems to agri-business needs of farmers and other stakeholders; and (vi) suggest policy interventions to redesign agricultural extension in India to meet emerging challenges and harness opportunities. The workshop deliberations focussed on five thematic areas: (i) Current status of agricultural extension policy in India; (ii) Public private partnerships in agricultural extension; (iii) Changing trends in global extension: Lessons for India; (iv) Innovative extension models/approaches in India; and (v) Agri-business extension. The workshop was designed to seek, synthesize and document innovative ideas based on empirical, review and case study experiences. Around 70 delegates attended the workshop.

Recommendations

1. Public sector extension (development departments) should focus on inclusive growth and socially sensitive stakeholders and regions such as resource poor, marginalized, tribal, weaker sections, and farm women. It should restrict its operational area to improved technologies in production, processing and marketing of cereals and pulses where private sector may avoid its active participation unless hybrids are involved. Communication, education and conviction should be used as the main forces with well-supported incentive packages. Pluralistic extension needs to be promoted and strengthened. Convergence and integration of different extension service providers is critical for improving the coverage and quality of extension delivery system. Hence, appropriate institutional arrangement needs to be evolved to ensure proper convergence and integration of extension service providers at different levels.

2. KVKs should continually develop new innovative models and approaches for technology dissemination by collaborating with social scientists of ICAR and agricultural universities. To do this, KVKs should be strengthened adequately and immediately in terms of their human, financial, material and knowledge resources to effectively meet the consistently increasing responsibilities and expectations. The functional and operational linkages between KVK and ATMA should be strengthened. ATMA should co-opt KVK expertise in preparation, operationalization and implementation of extension plans at block and district levels (BAP, SREP and CDAP). KVK should source ATMA as impact magnifier to create 'spread effect' of its frontline extension activities of technology assessment and refinement, frontline demonstrations and capacity building of farmers and extension personnel.

3. The role of government is crucial for fostering public-private partnerships in agricultural extension. The development departments (agriculture, animal husbandry, horticulture and fisheries) in each state should undertake a thorough portfolio analysis to identify and prioritize areas for public-private participation. Government should encourage private and voluntary sectors for effective partnerships by attractive incentives and a



regulatory framework to ensure social justice to the farmers. To support this, there should be regular interfaces between private and public extension systems and farmers to promote trust, transparency, expertise and experiences. Besides, a scheme on agricultural extension needs to be launched where financial support is given to upscale improved technologies in target domain.

4. Innovation system framework offers immense opportunities for redesigning agricultural extension. Its most significant implication for public extension system is to promote innovation capacity at all levels. For this, a national level empirical study should be taken up on identifying methodological protocols (critical success factors and indicators) for assessing scalability, fiscal viability and sustainability of innovative models and suggest ways to encourage innovative extension models and approaches.

5. There is a general paucity of empirical research back-up to assess and evaluate the impact of various extension systems, models and approaches. Extension scientists in collaboration with other social scientists in ICAR institutes and agricultural universities should take up such studies in network mode to scale-up the coverage and scope. The results of such studies should be regularly 'fed' to the relevant ministry and/or department such as Planning Commission, DAC, DARE, ICAR, etc.

6. Indian extension experiences and models can offer significant lessons for creating and redesigning extension systems worldwide especially in developing countries. Similarly, India too can gain immensely from the global experiences. Hence, 'transnational exchange of extension knowledge' should be promoted. However, importing of

successful models should be done after thorough piloting under field-testing for their 'adaptability'.

7. Government should evolve a policy framework for promoting agri-business extension by delineating commodity and services and areas for the purpose on the one hand and appropriate regulatory measures to safeguard the socio-economic safety of farming community and environmental concerns. The services of private sector extension should be harnessed by aligning them with the Rashtriya Krishi Vikas Yojana (RKVY) to create and operate farm infrastructure such as warehouses, cold chains, small scale agro-processing industries, micro-watersheds, etc. for the betterment of farming communities.

8. There should be strengthened and rigorous capacity building of extension personnel to promote professionalism, partnerships, pragmatism, prudence, technology-interface (e.g. ICTs), and pride in the form of morale boosting, attitudinal improvement and knowledge intensive training programmes in addition to skill development.

9. A national level task force may be constituted to come out with required modalities for establishment of 'Agricultural Extension Service' to foster professional human resource management in agricultural extension.

10. There is an immediate need to evolve a shared and realizable VISION 2020 (long-term perspective plan) for agricultural extension in India. A 'national-level think tank' should be constituted with eminent professionals (researchers, teachers, officers, managers, executives, farmers, etc.) from public, private, voluntary and farming sectors as members. This think tank should develop a perspective plan (Vision - 2020) for agricultural extension within a year. This plan has to be in harmony with the country's agricultural research and developmental priorities for the next decade besides clearly delineating ensuing challenges and opportunities.

National Dialogue on Building Leadership in Agricultural Research Management: Concerns and Future Strategy

The emerging challenges, rising expectations from the society and stakeholders, and growing research



competition with many countries and private sector call for developing innovative leadership potential and capabilities at different levels of hierarchy. It is critical that we evolve a mechanism to develop leadership in a pyramidal structure across different disciplines and regions to change our mind-sets, improve academic environment, build teams, and ensure exceptional professionalism in the workplace. Keeping these in view, NAARM and the Trust for Advancement of Agricultural Sciences (TAAS) jointly organized a National Dialogue on Building Leadership in Agricultural Research Management: Concerns and Future Strategy. The National Dialogue provided the forum to the leaders and stakeholders of our research system for discussing various issues and options to ensure effective and efficient leadership for revitalizing the existing research system through a road map that would ensure development of multiple-tier leaders. It also explored the concept of leadership in our research system to find ways by which leadership can be more effective in the present context.

The National Dialogue was inaugurated by Dr M.V. Rao, Former Special DG (ICAR), and currently President, Agri-Biotech Foundation. Shri M. Gopalakrishna, IAS (Retd.) and Former Chairman, APSFC, was the Guest-of-Honour on the occasion. Eminent leaders from the NARS, international institutes and corporate sector made presentations on various emerging issues with respect to building leadership in the National Agricultural Research System. The National Dialogue ended with a Panel Discussion, which was very actively participated by eminent leaders of the system. The national dialogue was attended by expert delegates from various organizations.

National Workshop on Livelihood Opportunities for Smallholders: Challenges and Opportunities

Involving smallholders genuinely in the process of agricultural transition and linking them with new opportunities to share the benefits is a major policy challenge. Keeping this in view, a workshop on Livelihood Opportunities for Smallholders: Challenges and Opportunities was organized jointly by National Academy of Agricultural Sciences, New Delhi; International Food Policy Research Institute (IFPRI) New Delhi Office; and NAARM, Hyderabad. The main objectives of the workshop were to: (i) explore emerging income-augmenting and employment-generating opportunities for smallholders; (ii) document promising institutional arrangements for enhancing their livelihood opportunities; (iii) envision smallholder-friendly



agri-research priorities; and (iv) develop a roadmap to up-scale the successful models involving smallholders in emerging income-generating opportunities. The workshop was inaugurated by Prof. V.S. Vyas, Member, and Economic Advisory Council to the Prime Minister, and Dr Ashok Gulati, Director in Asia, International Food Policy Research Institute (IFPRI) was the guest of honour. About sixty delegates from NARS, CGIAR institutes, corporate sector as well as start-up *agropreneurs* from different parts of the country attended the workshop, out of which 21 resource persons presented their papers.

The workshop was organized under 4 technical sessions; I. Income Augmenting Opportunities and Smallholders; II. Income Augmenting Opportunities: Public Sector Led Improved Technologies and; III.

Income Augmenting Opportunities for Smallholders: Role of Cooperatives and; IV. NGOs, **Smallholders and Corporate sector**. A number of successful models were demonstrated from public sector, cooperatives, corporate sector, and non-governmental organizations. These initiatives are in the areas of technology development, market integration, linking farmers with the markets, agri-finance and agri-insurance, and entrepreneurship development.

Recommendations

- Small and fragmented size of land holdings restricts on-farm development and escalates the transactions costs, making the marketing inefficient. Therefore, the utmost need is to check the declining trend of land holdings through legal provisions. Time is opportune for land reform and correct land lease markets.
- Non-farm sector has great potential in providing income and employment opportunities for the livelihood security of smallholders. In the long-run, more employment opportunities need to be created in the non-farm sector especially in rural areas to release undue population pressure from farm land. This will require (i) providing basic infrastructure and social amenities for attracting private investment in rural areas, (ii) developing non-farm sector (especially processing, manufacturing, services, etc) near rural areas, and (ii) developing skills and capacity of youth in rural areas to meet the needs of non-farm sector. Cluster of villages may be developed for promoting specific non-farm sector, and accordingly the capacity-building programs.
- Technology plays significant role in reducing costs and increasing yields and profits. Both public and private sectors are engaged in developing improved technologies. Therefore, 'end-to-end' provision in technology development, dissemination and access to the farmers need to be ensured for harnessing the potential of improved technologies. Public

sector research needs to review its research priorities and strengthen linkages between lab and land.

- High-value commodities (such as horticulture, livestock and fish) in comparison to cereals generate higher income in entire value chain. The high-value commodities are labor as well as capital-intensive therefore suit the needs of smallholders, who possess enormous labour provided they have access to cheaper credit and technology. Promoting high-value commodities will usher a demand-driven revolution, which will genuinely augment farm income and accelerate agricultural growth. Therefore, agricultural diversification in favor of high-value commodities needs to be promoted by identifying high-potential niche areas. Followings are the conditions for success of high-value commodities:
 - a. Increase in production of high-value commodities must be well integrated with appropriate institutional arrangements for linking smallholders with markets. A silent revolution of innovative institutions, in the form of contract farming, farmers' cooperatives, farmers' associations, and farmers' companies, is emerging in selected areas, which need to be expanded by effectively reforming the existing Acts. One is the promulgation of Model Marketing Act, which allows entry of private sector in agribusiness.
 - b. High-value commodities face more risk in production as well as marketing. Therefore, agricultural insurance would play an important role in minimizing risk arising due to crop failure and price crash. Commodity-specific and farmer-friendly insurance products need to be developed for safeguarding the interests of smallholders in production of high-value commodities.
 - c. Livestock-based farming systems has been traditionally tested method of risk mitigation including assured nutritional security to smallholders. Livestock based farming system needs to be promoted to augment income, ensure nutrition and, improve quality of natural resources. Effective ancillary service system, such as veterinary, breeding, etc., needs to be strengthened.
 - d. High-value commodities require more capital in the beginning. Therefore, financial institutions should extend easy credit to high-value and process commodities producers. To cut-down the transactions costs of financial institutions, group lending or *kisan* credit cards need to be encouraged and expanded in reach.
 - e. Agriculture sector calls for more investment to modernize high value crops sector. These commodities are perishable in nature, therefore cold storage warehouses, refrigerated transport, cold chains and processing are needed for their promotion and value addition.
 - f. Capacity-building of farmers and those involved in supply chain of high-value commodities need to be enhanced for their production, post-harvest processes, such as cleaning, sorting, grading, packaging, etc., and marketing.
 - Empowering women in agriculture: It is observed that access to technology, credit, insurance and markets is not well connected with women farmers. Joint ownership of land and relevant resources will help in empowering women and contribute in enhancing income and improve livelihood security of the farm family.
 - Reaching to unreached farmers: It should be the motto of all the development programs. This would encourage the participation of smallholders in accelerating agricultural growth. This calls for strengthening delivery systems and input services to reach to the door step of the smallholders.
- Developing alliance or consortia or network of different partners from public, private, non-

governmental organizations and farmers' groups for linking back-end and forward value chain would pay higher dividends to the farmers. Such arrangements would improve efficiency of all the partners by realizing the benefits of scale economy while harnessing synergies of each other.

National Consultation on Role of NAARM in Changing R&D Perspectives

A two-day consultation meet was organized on 'Role of NAARM in Changing R&D Perspective' on Jan. 6 and 7, 2011. The purpose was to reorient the NAARM programs in view of changing agriculture sector. It was chaired by Dr S. Ayyappan, Director General, ICAR. The other members on the panel included Dr MV Rao, Member Legislative Council, Andhra Pradesh, Dr C.D. Mayee, Chairman ASRB, Dr Arvind Kumar, DDG (Edn) and Dr P. K. Joshi, Director NAARM. Director NAARM welcomed all participants and introduced the agenda of the meeting.

Dr S. Ayyappan in his opening remarks identified some core concerns of ICAR which are important for setting the agenda for NAARM in the XII Plan. These included:

- (i) Maintaining the 'pan India' nature of the ICAR and ARS
- (ii) Need of a team approach to problem solving
- (iii) The declining quality of teaching in AUs and the need for training teachers
- (iv) The increasing role of KVKs in extension and the need to provide foundation training to Subject Matter Specialists of KVKs who could be from the ARS in future.

With specific reference to the role of NAARM, he identified the following as core concerns:

- (I) The need to inculcate professionalism in science by extending the training at NAARM beyond FOCARS to discipline specific research training for 6 months at leading institutions

- (ii) Like in the corporate sector and other all-India services, there is a need in ICAR to introduce mid career refresher courses at five-yearly intervals or so in management for those who have been through the FOCARS.
- (iii) There is a need to define specifically the roles of all scientists of ICAR ranging from entry-level Scientist to DG.

Expressing his concern for inspiring and developing leadership at all levels in ICAR, he suggested that this may be considered at two levels: (i) for mid career scientists who can be potential leaders in future; and (ii) for the Directors and Heads of institutions.

On the changing role of NAARM he suggested that the Academy must focus and prioritize its activities along two streams, namely training and education. To this end NAARM would be strengthened by: (i) increasing its cadre strength; (ii) recruitment of faculty in disciplines specific to NAARM; and (iii) permitting outsourcing of visiting and adjunct faculty as per need. Dr C. D. Mayee, Chairman, ASRB expressed his concern on leadership in NARS, and the inadequacy of training for over 30,000 teachers in SAUs. He also suggested that an analysis be carried out of the past selections by ASRB in relation to performance of the selected individuals. He also voiced his concern at the increasing concentration of ARS selections from a few SAUs. Dr M. V. Rao in his remarks expressed his concern for declining interest in agriculture as a profession and the emerging nature of partnerships with CG centres and multinationals as well as the future impact of IP protection laws. Dr Arvind Kumar, DDG (Edn) has stressed the need for introspection and prioritization of the activities of NAARM and suggested the creation of a satellite programs similar to FOCARS for teachers of SAUs. Dr S. L. Mehta, former Vice Chancellor and DDG (Edn) referred to the earlier QRT recommendations of NAARM to reorient foundation course so that professionalism could be build among the young scientists by having some sort of attachment training in state-of-art institutions.

All the participants made their initial introductory comments which generally reinforced the comments made by the panel on the need for upgrading the quality of scientists and teachers at entry level, and also for mid career scientists/faculty. To this end, NAARM should be viewed to be playing a catalytic role in increasing the efficiency of NARS as a whole. Several participants stressed the need for using case studies of institutions of NARS and success stories in the training programs. It was also suggested that NAARM can play such a catalytic role not only in India but also for countries in Asia and Africa. Certain concerns regarding posting (eg. should be on merit, before reporting at NAARM, etc) were also voiced. Dr P.K. Joshi made a detailed presentation of the activities of NAARM covering HRD, research, education, partnership and publication strategy. He also outlined the new initiatives proposed for the XII Plan in the form of 4 advanced centres and proposed research areas.

This was followed by a detailed discussion on each of the following with regard to the future role of NAARM: (i) FOCARS and other capacity building activities; (ii) leadership development; (iii) education programmes of NAARM; and (iv) strengthening of NAARM.

Recommendations

1. Foundation Course for Agricultural Research Service (FOCARS)

The FOCARS is the flagship program of the Academy. The program needs to be further strengthened to prepare next-gen professionals in view of changing scenario of agriculture sector.

- a) The entire foundation course will be of 1 year. It will be organized in four phases. First phase will be of 80 days module, which will be organized at NAARM to cover (i) orientation and awareness creation about agriculture and agricultural research system at national and international level; (ii) enhancing research competence; (iii) practicing participatory research, including field experience training, developing research

proposals; (iv) information management; and (v) behavioral skills. Second phase will be of 180 days duration with selected state-of-art laboratories in the country as an on-the-job training. The III phase will be of 90 days rural orientation programme. The director of the institute will identify the laboratory and place for rural orientation training in view of the ongoing and future research programs. The fourth phase will be of 10 days duration at NAARM. The guidelines of these phases may be developed separately.

- b) Postings of ARS probationers need to be announced before joining the system. The probationers would directly report at NAARM.
- c) Postings of ARS probationers preferably need to be based on their merit and choice. The choice needs to be sought immediately after the announcement of the result.
- d) The final evaluation done by NAARM should be given appropriate weightage by ASRB in the career assessment and promotion.
- e) The scientists after completing their training of 1 year should be posted in the institute headquarters for a minimum of 5 years. In no case the scientists should be posted in regional or sub-stations of the institutes during this period.
- f) Detailed guidelines of the entire program should be developed and be presented in the Vice Chancellors' and Directors' Conference.

2. The other capacity building programs need to be reoriented to meet the needs of the national agricultural research system. It was decided that there will be three types of HRD programs for ICAR and AUs professionals. These include:

- (i) leadership programme
- (ii) refresher courses
- (iii) need-based courses

- a) Leadership programs: Two types of leadership programs will be organized (i) Executive Development Program for RMP positions in ICAR of 5 days duration; and (ii) Management Development Programs of 15-days duration for Principal Scientists and Heads of Divisions to develop future leaders. Two courses for each program would be organized in a year.
- b) Refresher courses: One program of 10-days duration will be organized for Principal Scientists and Senior Scientists to refresh in personality development and changing agricultural scenario.
- c) One program of 21 days duration will be organized for directly recruited Senior Scientists and Principal Scientists joining from outside ICAR system.
- d) Need-based programs: Courses such as e-learning, geospatial information systems; multi-media development; IPR issues, prioritization and impact assessment, scientific communication, winning research proposals, project management, monitoring & evaluation, etc, should be organized as per the need in the system.
- e) A 2-days retreat may be organized for DDGs and Vice Chancellors
- f) All the above programs may be institutionalized by the ICAR.

3. The Academy has started educational programs on Post Graduate Diploma in Management (Agriculture) and Technology Management in Agriculture. These need to be continued. The Academy may propose a diploma program in Agricultural Research Management in a distance mode in the XII plan. A summer/winter schools of 21 days may be organized yearly on Education Technology and Technology Management in Agriculture for teachers of

agricultural university to enhance their capabilities and competencies.

4. It was strongly felt that the Academy should also cater to the needs of teachers of agricultural universities and extension personnel of KVKs. It was proposed to have a Centre for Capacity Building of Teachers in SAUs under NAARM. Similarly, a regional station of the Academy for the training of extension personnel was also recommended. A six month programme for KVK recruited staff (2 months at zonal Project Directorates; 2 months at Institute-SMD-wise; 2 months at best KVKs in the relevant zone) be developed. It was recommended that a separate discussion may be organized on this issue to address all the dimensions, including modalities, infrastructure and budget estimates.

5. It was recommended that the Academy should explore for Chair Professorship from public and/or private sectors in the areas of its mandate. It was also recommended that one position of National Professor in Agricultural Research Management may be reserved for NAARM.

6. It was recommended that the Academy should develop strong linkages and convergence with institutions such as ASRB, NCAP and IASRI to strengthen its research programs in areas related to agricultural research management, agribusiness, and quantitative techniques. The research of the Academy should focus more in the areas of 'research on research', agricultural research policy, governance issues, institutional changes, innovations in ICTs, etc.

7. The faculty strengthen of the Academy should be 75 with one Director, and three Dean-cum-Joint Directors in: (i) research and education; (ii) HRD (training-ICAR); (iii) HRD (training-AUs). The scientific positions and discipline may be developed keeping in view of the Academy's future programs. Recruitment of faculty will be specific to the identified disciplines.

Conferences

Annual Conference of Agricultural Economics Research Association

The 18th Annual Conference of Agricultural Economics Research Association (AERA) was organized at the Academy from Nov. 18 to 20, 2010. The main theme of the conference was “Value chains of agricultural commodities and their role in food security and poverty alleviation”. Dr William D. Dar, Director General, ICRISAT was the chief guest on the



inaugural ceremony. Dr Dar advocated that the small-scale producers should be given due priority for the effective inclusive market. Agricultural economists can bring desirable change by providing key input to the policy formulation which can make huge difference in the lives of rural farmers, he added. Dr P. Raghava Reddy, Vice Chancellor, Acharya N.G. Ranga Agricultural University, was the guest-of-honour on the occasion. He emphasized for strengthening food value chains for improving market efficiency and sharing benefit with the farmers. The conference souvenir was released on the occasion.

The research paper presentations were on the following four broad themes: (i) value chains of food grains and other cash crops; (ii) value chains of livestock and fisheries; (iii) value chains of fruits and vegetables; and (iv) role of technologies in value chains. Three special sessions were also organized during the conference: (i) reshaping trajectory of agricultural growth in Andhra Pradesh, organized by NAARM; (ii) exploring development pathways through village dynamics studies, by team ICRISAT to demonstrate their village level studies in South Asia; and (iii) priority-setting, monitoring and evaluation (PME) by NCAP. In all, over 60 research papers were presented by eminent scientists in the field, and were deliberated upon.

The conference output would lead to a policy framework in developing a holistic approach for addressing production to consumption system (value chain) with priority to post-harvest processing, quality management, nutritional issues, etc., wherein backward linkage with input-supply system and forward linkages with food-chain aspect with focus on quality would be included. This conference was supported by ICRISAT, Acharya N.G. Ranga Agricultural University, and Learning and Capacity Building (L&CB) project of NAIP of ICAR. More than 150 experts in agricultural economics and allied fields from India, Bangladesh, Nepal and Philippines attended the conference. Dr Mruthyunjaya, President, AERA, Dr P.K. Joshi, Secretary, AERA, and Dr G.P. Reddy, Organizing Secretary, were instrumental in successful organization of the conference.

Annual Conference of Society of Statistics, Computer and Applications

The 13th Annual Conference of Society of Statistics, Computer and Applications (SSCA) was organized at the Academy from Feb. 24 to 26, 2011. Prof. B.L.S. Prakasa Rao, Ex-Director, Indian Statistical Institute (ISI), Kolkata, was the Chief Guest, and delivered inaugural address. Dr G.K. Shukla, IIM, Lucknow was the guest-of-honour. Dr Kashinath Chatterjee, Visva Bharati, Shantinekatan, delivered a special address on “Bayesian U-type Design and its Application for Nonparametric Response Surface Prediction” during the inaugural session. Special symposia on Statistical Computing including Spatial and Bayesian Statistics; Statistics in Finance; and Information and Communication Technologies (ICTs) for promoting Agricultural Innovation were organized during the conference. The conference had participation of 78 eminent policy makers, active statistics researchers and practitioners from public, private and non-governmental sectors, scientists from ICAR and other research organizations. Drs M.N. Reddy and A. Dhandapani of NAARM were instrumental in successful organization of the conference.



Research

The Academy receives significant support for research from ICAR and other agencies through both direct and competitive grants. The extramural funding for the period 2008-12 presently stands at above Rs 55 crores. 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

The list of research projects in operation during 2010-11 is given below:

Project code	Title of the Project
Agricultural science and technology policy	
60	Assessment of Developments in Nanotechnology for Agricultural R&D
59/1	Knowledge Discovery and Knowledge Management Tools to Characterize Livelihoods Systems
Accelerating agricultural innovations through ICTs and institutional change	
62	Agroweb Digital Dissemination System for Indian Agricultural Research
61	Geospatial Data and Knowledge Organization Systems for Agricultural Research, Education and Technology Transfer (Geospatial Library and rural GIS)
55	Training Needs and Impact Assessment of L& CB under NAIP
56/1	Strategies to Promote Use of ICTs in Agricultural Value Chains
56/6	Job Training Interventions through Distance Digital Mode for Enhancing the Effectiveness of Research and Educational Institutes
56/5	IT-based Decision Support System for Effective Knowledge and Technology Transfer
56/2	Empowering Rural Women through Information and Communication Technologies (ICTs)
56/3	Digital Multimedia for Agri-innovation Transfer (DMAT)
56/4	Digitally Enabled Customization of Information for Decision and Empowerment
59/3	Technology Delivery Models for Less Favoured Areas
65	Strengthening Statistical Computing for NARS
Organization and management for strengthening agricultural research	
63	Assessment of Future Human Capital Requirements in Agriculture
64	Technological Forecasting and Assessment of Future of Fly Ash in India
40	Performance Assessment of Agricultural Universities
58/1	Change Management for Promoting Innovation
58/2	Leadership Effectiveness for Promoting Innovation

Project code	Title of the Project
58/3	Performance Enhancement for Promoting Innovation
58/4	Assessment and Development of Organizational Citizenship Behavior for promoting efficiency and effectiveness in NARS
59/4	Procedures for Total Quality Management in Multi-stakeholder and Multi-institutional Consortia-based Research Project
Agri-marketing and value chain management	
57/2	Policy Support for Strengthening the Value Chain to Address the Challenges of Globalization
	Governance and institutional arrangements in areas of topical issues
57/3	Intellectual Property Management in Public Private Partnerships - Patents, PVP and Copyrights
57/4	IP Management in Public Private Partnerships - Agro-biodiversity, Geographical Indications and Traditional Knowledge
67	IP Management and Transfer/Commercialization of Agricultural Technology Scheme
71	Prioritization and Socio-economic Impact of Agriculture Research and Development

Agricultural Science and Technology Policy

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

R. Kalpana Sastry and N.H. Rao

Objectives

- To develop a framework and process-based methodology for nanotechnology assessment to facilitate its integration into agricultural research domain
- To design and develop bibliographic and patents databases of nanotechnology research, to map nanoresearch areas to the agricultural supply chain
- To engage, share, and facilitate stakeholders of NARS in developing a new nanoscience and technology research agenda to enhance, complement and integrate with current agricultural research
- To assess implications for institutional policies, society and environment, to facilitate technology transfer

Progress

The specially designed database models of nanotechnology (NT) patents and bibliographic sources were used to organize information of R&D indicators in nanotechnology. Knowledge mapping concepts were applied to three case studies on assessment of nanotechnology applications in agriculture, namely, disease diagnostics, precision farming technologies and nano-biotechnology. These studies are useful in preparation of road map for policy in use of NT in agriculture. Major outcomes are: recognition of the work at several platforms, both at national and international levels during the year 2010-2011; and extending the knowledge domain to several institutions of NARS and outside NARS for initiating research studies in nanotechnology applications in key areas. The latter has resulted in R&D projects being initiated by several institutes. It is also recognized that studies on ethical, environmental and risk assessment of nanotechnology in agriculture are needed to be carried out before the technologies can be applied in agricultural systems.

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

M.N. Reddy, N.H. Rao, G.P. Reddy,
K.H. Rao and K.V. Kumar

Objective

- To develop knowledge discovery and knowledge management tools to characterize livelihoods systems

Progress

An analytical framework to characterize vulnerability of rural livelihood systems on a regional scale was developed in 2009-10. In this framework the livelihood assets/capitals namely, human, natural, financial, physical and social were used and assumed to characterize the rural livelihood systems. Each type of capital could be represented by a number of attributes and indicators. Model based expectation maximization method of clustering was used to characterize the livelihood capitals into homogenous vulnerability regions. Further a vulnerability index was suggested to rank different clusters according to the degree of vulnerability. Data of 59 contiguous mandals of Nalgonda district in Andhra Pradesh on 29 livelihood attributes classified into five capitals was analyzed using this analytical framework and already reported.

The analysis was further extended during 2010-11 to incorporate spatial dependencies of the attributes. As a first step, data on 29 livelihood attributes of 59 mandals in Nalgonda district was tested for their spatial dependencies using the Moran's I statistic:.

$$I = \frac{N}{\sum_i \sum_j w_{ij}} \frac{\sum_i \sum_j w_{ij} (X_i - \bar{X})(X_j - \bar{X})}{\sum_i (X_i - \bar{X})^2}$$

where N is the number of spatial units indexed by i and j ; X is the variable of interest;

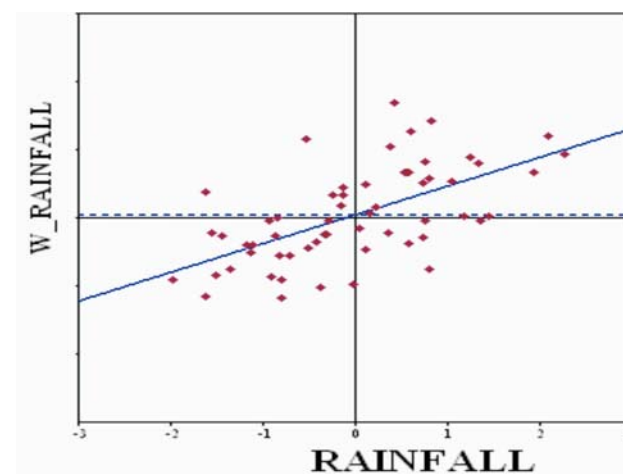
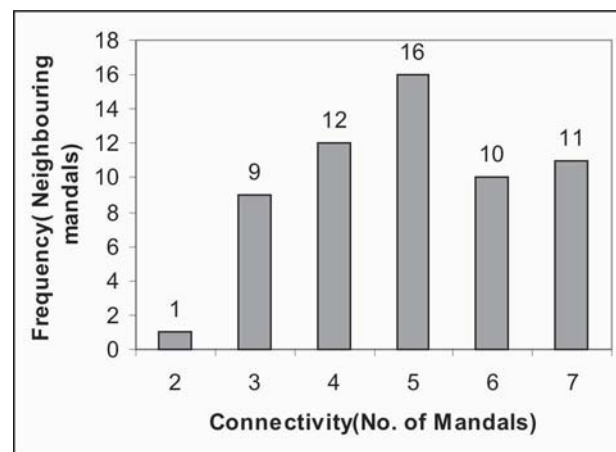


Fig 2.1 a) Frequency distribution of number of first order neighboring mandals and b) scatter plot of weighted rainfall of neighboring mandals against actual rainfall in Nalgonda district in Andhra Pradesh

Work on identifying the clusters of mandals more accurately, according to their vulnerability, through spatial modeling is in progress.

Accelerating agricultural innovations through ICTs and institutional change

3. Agroweb Digital Dissemination System for Indian Agricultural Research

G.R.K Murthy, D. Rama Rao, N. Sandhya Shenoy
and P. Mohan Singh (NAARM, Hyderabad)
R.C. Agrawal (NBPGR, New Delhi)

Objectives

- To identify standards, develop uniform guidelines, content management strategies and a model template for websites of ICAR institutes
- To develop model website of all consortium partners to meet requirements of stakeholders
- To design and develop ICAR 'Portal' and integrating the websites of consortium partners



- To build capacity of personnel in ICAR institutes in design, development and management of websites

Progress

I) Development of dynamic website for the Academy using Content Management System

The Academy website was developed in Joomla for dynamic functionality and commissioned on Sept. 1, 2010. Some of the salient features of the new website are presented in the following table.

Table 3.1: Comparison of new website in relation to the earlier website

SI No	Feature	New website	Old website
1	Training Management	<p>Overall glance of yearly programs by choosing month Dynamic generation of program list Provision for Program directors to upload and update brochure Provision for online submission of application for a program Training manager can change the dates and other settings of the program</p> <p>Program director can view total nominations list any time and approve/ disapprove the candidature of a prospective trainee through an auto generated communication to the prospective trainee Training manager can generate reports on training year wise, program director wise, program-wise New look of training programmes at a glance</p>  <p>Simple, compact and informative look</p>	<p>Glance of latest programs only</p> <p>Manual addition of program list Only webmaster can upload the brochure No provision for online submission</p> <p>Only webmaster can manually change the dates of a training program Program director can manage the hard copies of nominations and approve/disapprove through manually sending letter or email</p> <p>There is no auto generation of reports</p> <p>Training programs in old website</p>  <p>Difficult to view with horizontal and vertical scroll bars and not so informative</p>

SI No	Feature	New website	Old website
2	Subscription	User can subscribe for latest updates in newsletter and tenders after registration. Techniques like Captcha image is used to prevent any spam generated registrations	No facility for subscription
3	FOCARS pages	Online database for registration of all FOCARS (past and present) scientists to develop a network among all past trainees	No online database
		Improved FOCARS photo gallery with better look and feel	No image gallery
4	Reaching NAARM	Integration with Google maps and user can choose the destination points like airport, railway station to reach NAARM so that he gets a detailed route map. This will be useful for the trainees reaching NAARM for training.	Simple static information about reaching NAARM
5	Virtual tours	360 degree viewing of latest additions to the Academy- Auditorium, class room and laboratory	Virtual tours of older facilities with high memory consumption for viewing
6	Faculty pages	Compact in one place with thumbnail images of staff of all categories	Faculty page in table format
7	Infrastructure	Improved look with pictorial description of overall facilities	Listing of infrastructure available
8	Overall appearance	Neatly organized menus and submenus and very compact (only one screenful length) of homepage	No menu concept is followed
9	Search	Integrated search facility	Google search integration
10	Archives	Archives for former directors	No archive
11	Organogram	It is made interactive with hyperlinks	Static organogram
12	FAQ	Present	Absent
13	Discussion forum	Discussion forum is created to elicit time to time views on selected topics among chosen participants. It will be very useful in conducting brainstorming sessions and arriving at online consensus	No discussion forum
14	Publications	Searchable yearwise and categorywise	No provision for searchability
15	Role based access		Provided Not provided

ii) Development of Web-based Training Management Module

Training Management module was developed to efficiently manage the entire cycle of training right from the notification of training programme, uploading training programme brochure, and facilitating online submission of nomination forms to generation of reports of various kinds after the completion of the programme. Role based access was given to programme coordinators who were given privileges to edit their programmes, to accept or reject the nominations. This process alleviated the cumbersome and time-consuming process of manual exchange of communication between the Institute and the participants. Since Joomla was used as the CMS to develop the website, the module was developed as a Joomla based extension.

The conceptual frame work of the module is shown in Fig. 3.1. The process cycle starts with a prospective trainee of a programme choosing a programme and applying online after 2 stage personal information uploading process. The data will be accessible by the concerned program coordinator only, who can see the candidate's profile and approves or rejects as per the merit of the case. Approved candidates will get an auto-generated email about their confirmation for the programme while the list of approved and rejected candidates will go into the database accordingly. Final list of a programme is generated after actual start of programme because some of the confirmed candidates may not turn up for the programme. After the final list is made, the data gets sorted programme-wise. These programmes get added cumulatively, which can be summarized through report generation based on the period of reporting (good for finding annual turn-out) and program coordinator wise (good to know how many programmes were handled individually).

At any point of time, the data can be accessed by administrative unit in totality, while the program coordinators can view the data pertaining to their respective programs.

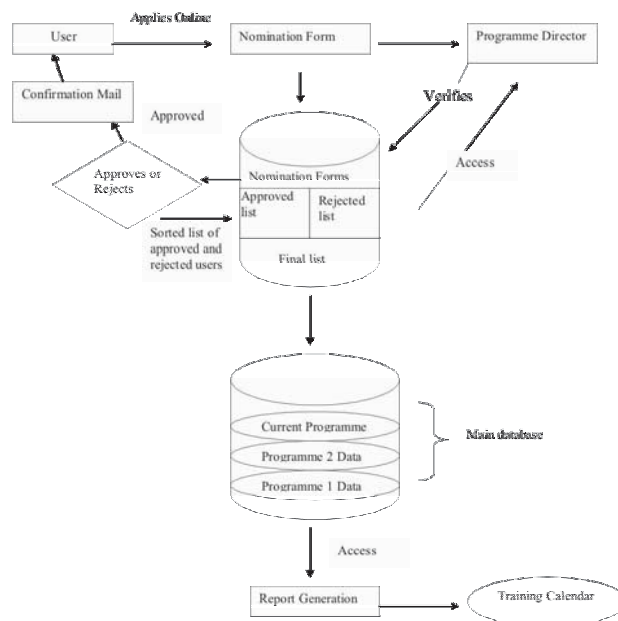


Fig.3.1: Process flow of Training Management module

iii) Development of online databases- ICAR SRF HALL TICKET module

Online database was developed for hall ticket generation for SRF examination. This eases bulk mailing of hall tickets and ensures timely/anytime receipt of hall-tickets. The data retrieval is done by providing candidate input fields viz. Date of birth, Subject code, Sub subject code and Center code as shown in the figure. Care is also taken to see that the candidate does not have to input any data through keyboard to avoid any possible textual mistakes. Suitable drop boxes have been given so that the student can simply choose the same. This model has been used in all the three SRF exams conducted by NAARM.

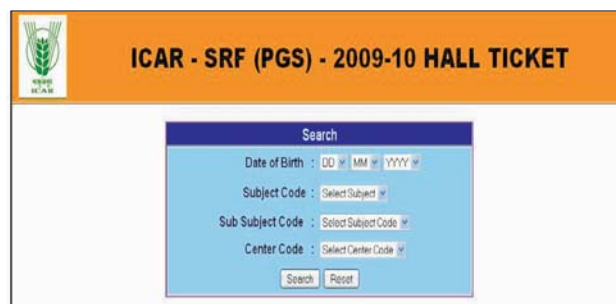


Fig. 3.2. Front-end interface for hall-ticket download for SRF exam

Key findings, conclusions and recommendations:

- Open source methodology for web content development can be effectively implemented using options like Joomla because of its ease of adoption with vast number of extensions
- Drop down menu used for SRF Hall ticket module is a very effective in seeking the records effectively.
- Under capacity building, provided training to 78 personnel as against 60 exceeding the target.
- Online scientist profile is useful in maintaining network of scientist probationers who underwent training in different periods.

4. Geospatial Data and Knowledge Organization Systems for Agricultural Research, Education and Technology Transfer (Geospatial Library and rural GIS)

N.H. Rao, M.N. Reddy, K.V. Kumar, V.K.J. Rao, K.H. Rao, G.P. Reddy and S.K. Soam

Objectives

- To build a geospatial library and provide web-based access to geospatial data, services, and learning and knowledge resources to support agricultural research, education and technology transfer in a region covered by an SAU
- To build a participatory rural GIS using PRA processes for village knowledge centers to support agricultural decision-making by local communities
- To build the capacity of NARS personnel in digital content development and knowledge management for effective technology generation and transfer

Progress

I. NAARM Geospatial Library (NGSL)

A prototype geospatial library to provide web-based access to geospatial data, services, and learning and knowledge resources to support agricultural

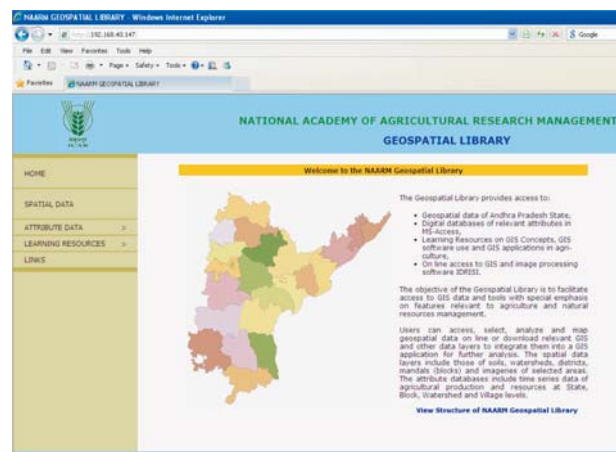


Fig. 4.1. Home page of NAARM Geospatial Library

research, education and technology transfer was designed in 2009-10. The prototype was based on data of a region covered by a State Agricultural University (SAU)/ Government Department/ Institution. The State of Andhra Pradesh, (which is the region covered by Acharya N.G. Ranga Agricultural University) is chosen to develop the spatial and attribute data resources for the Geospatial Library. The Library is accessed via a Website designed for delivery of spatial data, attribute data and learning resources (Fig. 4.1.) .The project was supported under the National Agricultural Innovation project (NAIP) up to June 2010. The final report has been submitted to NAIP detailing the work done up to that time.

Since then the Geospatial Library continues to be available on NAARM LAN for use in training and teaching. The Library is being regularly updated with additional on line spatial and attribute data, analysis tools and learning resources. An example is the additional information now available on the Agricultural Market Committees. Facilities have been added for on line query about details of selected markets, and analysis to identify the villages within a specified distance range of the markets. This will enable farmers and traders to decide on which markets to transport their commodities to after obtaining information on local prices (Fig.4.2). It may be noted that only 45% of the total number of villages (44% of the area of the district) are within a 10 km range of the markets.

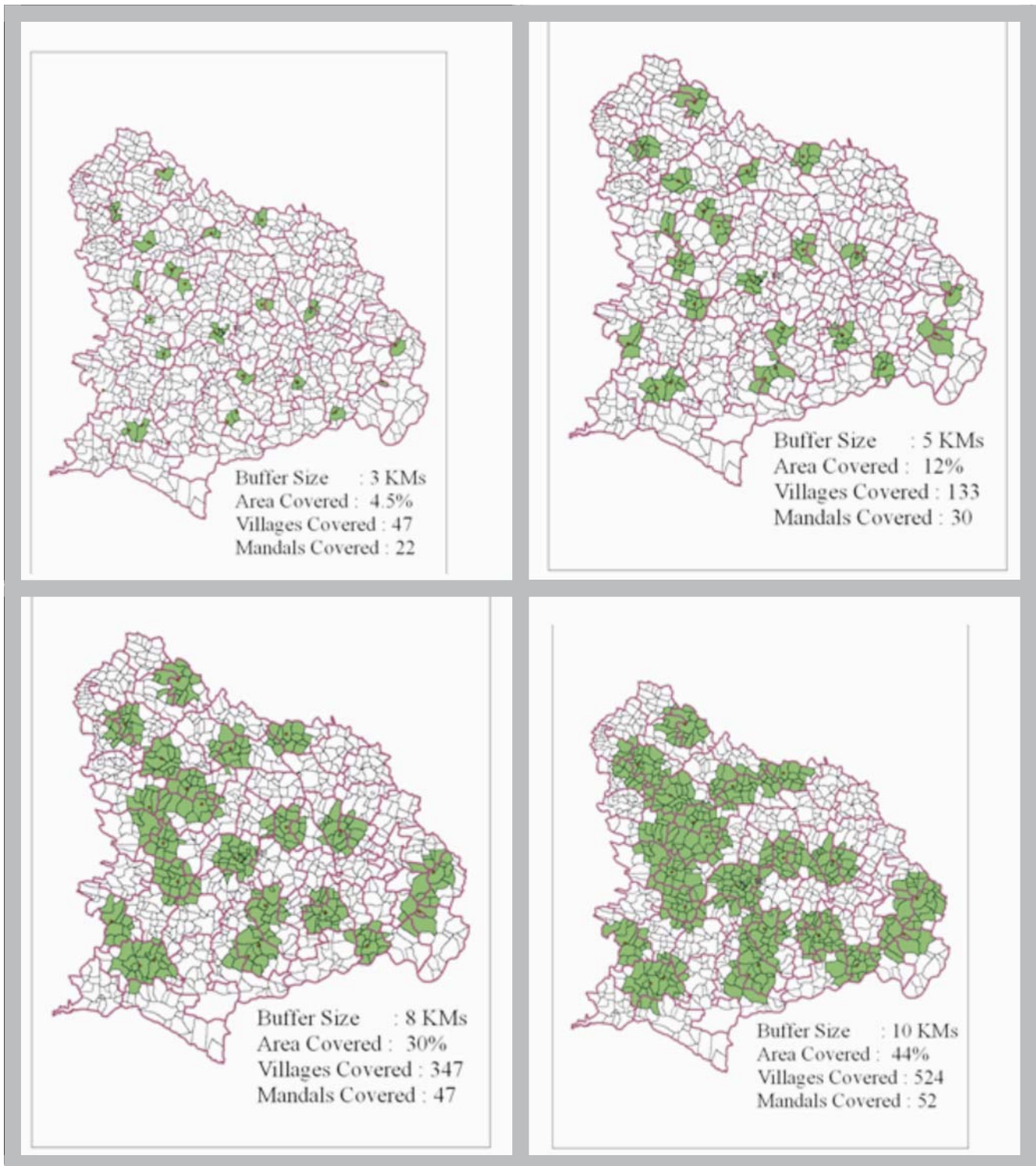


Fig 4.2.: Locations of Market committees in Nalgonda district of Andhra Pradesh and villages within 3, 5, 8 and 10 km of the markets (total no. of villages: 1163)

II. Geospatial Village Knowledge Management System (GVKMS)

A prototype Geospatial Village Knowledge Management System (GVKMS) was developed to support agricultural decision-making by rural communities under the NAIP project (which was terminated in June 2010). The GVKMS is a deployable windows application developed using Map Objects and Visual Basic in addition to standard GIS software. The GIS software was used to create the spatial data layers relevant to the decision processes. These are then integrated along with other attribute data and learning resources

(including indigenous knowledge resources) into the deployable application in the Village Knowledge Centre. At the VKC itself, there would not be any need to install complex GIS software. All that required is a computer operating on windows operating system. The GVKMS was developed for and deployed in a village in the Penpahad mandal in the Nalgonda district of Andhra Pradesh. This project too was supported by the NAIP and a final report was submitted summarizing the details and development and application of GVKMS. During the year under report, socioeconomic and crop data (Fig.4.3) were collected and integrated into the GVKMS.



Fig.4.3.: Crop distribution by survey numbers in Dupahad village

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

*B.S. Sontakki, K.H. Rao, G.P. Reddy,
J. Challa and R. Venkattakumar*

Objectives

- To assess training needs for L&CB under NAIP
- To evolve a comprehensive L&CB plan and framework based on the identified training needs
- To identify indicators for impact assessment of L&CB under NAIP
- To assess impact of L&CB programme
- To evolve a comprehensive impact assessment strategy for L&CB

Progress

L&CB under NAIP envisages achieving purpose-oriented results through a combination of short and long duration trainings, policy workshops, and other modes of learning. All these training and learning interventions have to be based on needs at individual, group and institutional levels of the various agricultural innovation systems. Further, there is a need to systematically monitor and assess the impact of L&CB initiatives to justify investments. Impact assessment of learning and capacity building programmes is an emerging

practice. Conventionally, impact assessment of training or L&CB programmes is done at reaction and result (output) levels with virtually no attempt at gauging the impact at performance and outcome levels. Hence, there is a need to design and implement an appropriate impact assessment strategy for L&CB to comprehensively cover all the four levels, viz. reaction, results, performance, and impact. Such a strategy would enable justifying continued investments on L&CB on one hand and developing strong feedback mechanism to improve the quality of L&CB efforts on the other. Hence, the present study is conceived with the aim of evolving a comprehensive impact assessment strategy for L&CB initiative of NAIP. Even though the study is planned in the context of NAIP's L&CB initiatives, its results would be of immense utility in effective management of learning and capacity building programmes in general.

An on-line template specially developed for the purpose was used to administer the training impact assessment instrument and analyze the results. The instrument consists of 16 indicators representing content, relevance, design, resources, delivery, process, outcome, and logistics related to learning programs. This analysis was done for the evaluation data obtained from 193 participants of the 10 programmes organized by the Academy under L&CB project of NAIP during the year. The results were analyzed by working out programme-wise averages for the indicators and the same are summarized in Table 5.1.

Table 5.1: Impact of L&CB Programmes of NAARM during 2010-11

(Number of Programmes=9; Number of Participants=180)

Impact Indicators	Score Range (Min - Max)	Mean Score
Content	3.94 - 4.56	4.24
Coordinators' Skill & Support	4.42 - 4.88	4.76
Relevance to needs	3.90 - 4.57	4.21
Overall learning	3.98 - 4.62	4.37
Program/course in general	3.90 - 4.53	4.21
Expectations met	3.96 - 4.58	4.28
Recommend to others	4 - 4.63	4.4
Adequacy of theory and practical	3.76 - 4.28	3.98
Up to date topics	4.12 - 4.58	4.32
Additional knowledge gained	4.18 - 4.60	4.38
Resource material	4.32 - 4.64	4.42
Teaching aids	4.28 - 4.74	4.46
Clarity of speakers' presentations	4.3 - 4.82	4.52
Interaction opportunities	4.48 - 4.88	4.64
Training methodology	4.22 - 4.72	4.46
Use of knowledge & skills gained	4.18 - 4.73	4.41

Table-5.1 indicates highly encouraging response on all the indicators of early impacts (initial reaction and learning) of L&CB programmes conducted during the year 2010-11. 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 3.76 to a maximum of 4.88. It could also be noticed that the mean score of these indicators ranged from a minimum of 3.98 (adequacy of theory and practical) to a maximum of 4.76 (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, teaching aids, clarity of speakers' presentations, interaction opportunities, training methodology and utility of knowledge and skills, the mean scores were in the range of 4.21 to 4.64 signifying overall ratings by participants in the range of very good to excellent. Comparisons of L&CB performance over the three years, 2008-09, 2009-10 and 2010-11 indicate a progressive improvement in all 16 indicators in successive years.

Table 5.2: Comparison of early impact of L&CB programmes during 2008-09, 2009-10 and 2010-11

Impact Indicators	2008-09 (n=213)	2009-10 (n=180)	2010-11 (n=193)
Content	4.12	4.23	4.24
Coordinators' Skill & Support	4.46	4.60	4.76
Relevance to needs	3.93	4.07	4.21
Overall learning	3.86	4.08	4.37
Program/course in general	4.02	4.13	4.21
Expectations met	3.89	4.05	4.28
Recommend to others	4.09	4.34	4.40
Adequacy of theory:practical	3.77	3.80	3.98
Up to date topics	4.06	4.18	4.32
Additional knowledge gained	4.19	4.26	4.38
Resource material	4.21	4.28	4.42
Teaching aids	4.30	4.37	4.46
Clarity of speakers' presentations	4.17	4.29	4.52
Interaction opportunities	4.29	4.42	4.64
Training methodology	3.89	4.26	4.46
Use of knowledge & skills gained	4.18	4.24	4.41

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

D. Rama Rao

Objective

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

Progress

Information and Communication Technologies (ICTs) are evolving as a new mode of technology transfer to the end-users with less time and cost. ICTs are potential tools to help in value chains and information flow between various stakeholders. A number of farmers are now using mobile and other ICT tools in their day-to-day life. Considering these

developments, the current state of information and communication technologies use in villages was assessed to develop strategies to design and develop effective ICT applications for promoting agricultural innovation. Survey on ICTs use in agriculture by 329 farmers in 20 districts across the country was carried out by FOCARS trainees.

A survey instrument was developed to obtain the use of various information tools by farmers. The tools include newspapers, radio, TV, mobile phone and internet. Information was also collected on the variety of uses of these devices by farmers, the associated costs and benefits of use, facilitation of networking, etc. Special focus was given to the use of the tools for agricultural purposes. Preliminary results show the association between various media tools and synergy when used together. There was a great deal of sharing of media tools and information asymmetry associated with gender. The survey showed that ICTs provided a range of services in the villages and proved that technology could make a difference in rural life.

7. Job Training Interventions through Distance Digital Mode for Enhancing the Effectiveness of Research and Educational Institutes

M.N. Reddy, A. Dhandapani and J. Challa

Objective

- To develop on the job training interventions through on-line mode for enhancing the effectiveness of research and educational institutes.

Progress

Development of on-line learning modules for the “GIS Applications in Agribusiness” was initiated. The proposed applications are i) Retail site selection; ii) managing sales territories; and iii) developing an integrated marketing communication programme. Web-based learning modules on “retail site selection” (Fig.7.1) were developed. The learning modules consisted of the procedure to locate the most suitable retail shop locations based on spatial data layers of administrative units, and survey data, using ARC GIS software. The modules incorporated the video of the procedure and provided a systematic procedure for self-learning. The module was developed using the following software: Dreamweaver for developing web pages and



Fig.7.1. Online learning module for retail site selection using GIS

cascading style sheets, Flash for animation, Demobuilder (Trail version) for video capturing, and Audacity for audio editing. The learner can download all the necessary spatial and non-spatial data required to carry out the analysis. This learning module would be used as supplemental learning resource for the course “GIS applications in agribusiness” of PGDMA course at the academy.

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

G.R.K. Murthy and K.M. Reddy

Objectives

- To identify and assess the relevance of different content management strategies (CMS)
- To short list suitable management strategies for decision making purpose in agriculture
- To integrate decision support tools through content management models for effective knowledge and technology transfer

Progress

Online evaluation saves resources like time, expenditure, infrastructure and consumables. An online system was established in Local Area Network (LAN) environment for online evaluation of the FOCARS probationers whose evaluation was being done manually earlier. It was found to save 15 man days and Rs 44750 per batch of participants and gives an annual cost saving of Rs 134250. The studies were conducted for a total of seven batches of FOCARS probationers. The comparisons between traditional and online evaluation are given in Table-8.1.

Table-8.1: Comparison and requirement of time for traditional and online evaluation methods

Sl No	Feature	Online Method	Traditional Method
1	Total evaluation time, hours	1	8
2	Instant evaluation	Yes	No
3	Instant Tabulation	Yes	No
4	Jumbling of Questions	Yes	No
5	Jumbling of Choices	Yes	No
6	Need of Moderation of papers	No	Yes
7	Printing and use of stationery	No	Yes
8	Number of personnel involved in the process of evaluation	2 + 4 = 6 for 2 hours	2 + 4 = 6 for 2 days

Cost comparisons given in Table-8.2 show the clear advantage of online examination as compared to traditional method. The online exam involves a cost of Rs 19,500 as compared to Rs 64,520 for the traditional method (for single batch) thus, resulting in a saving of Rs 45,020 per batch, saving in faculty time and manpower.

Table 8.2: Cost Comparison of Traditional and Online Methods (Per Batch)¹

Sl No.	Resources used	Online (in Rs)	Traditional (in Rs)
1	Software Cost	11,500 ²	Nil
2	Computer usage cost Electricity, Air-condition Charges, etc.	2,500 ³	1,250 ⁴
3	Manpower cost for invigilation	3,000 ^{5 6 7}	18,000 ⁸
4	Cost of Preparing Question papers-Setting & Moderation	2,500 ⁹	12,500 ¹⁰
5	Stationery & Printing	Nil	6,000 ¹¹
6	Evaluation	Nil	25,000 ¹²
7	Compilation & Tabulation	Nil	1,500 ¹³
	Total	19,500	64,250

¹ One Batch of 50 Probationers

² Software cost for 1 Batch considering depreciation & maintenance with updates

³ Cost of computers & electric charges Rs50 per head

⁴ Cost of computers & electric charges Rs25 per head

⁵ 50 probationers in two batches (each batch inspected by 6 invigilators)

⁶ Rs 1500 per manday of 6 man hours (Technical Staff)

⁷ Total requirement 2 Mandays

⁸ 12 mandays (Technical)

⁹ 2500 per man day (Scientific Staff)

¹⁰ 5 Scientific Mandays

¹¹ 30 Pages X 4 exams @ 1 Re/Page for each probationer

¹² 10 Mandays (Scientific)

¹³ 1 Manday (Technical)

Perception of online evaluation by the users

A questionnaire was developed to survey and assess the perception of scientists (mainly belonging to various FOCARS) on 10 aspects of the online evaluation process on a 1-5 scale (Table 8.3). The feedback is highly positive (above 4 points) on all 10 aspects of online evaluation. This strongly suggests that the new method of evaluation has been well accepted and implemented.

Table 8.3: Perception of Online Evaluation

Sl. No.	Statement	Mean Rating
1	Guidelines provided to understand the pattern of online exam are clear	4.60
2	User Interface is simple	4.55
3	Scrolling from one question to another is comfortable	4.49
4	Going back to unanswered question is easy	4.22
5	Scrolling of screen is comfortable	4.45
6	Screen resolution and font size is good	4.56
7	Answering options (radio buttons) are clear	4.46
8	Reviewing the answers before submitting the exam is easy	4.30
9	Submitting the exam on completion is easy to understand	4.60
10	Online is better than offline mode	4.46

The LAN based online examination has been standardized for the FOCARS. Up to 2010-11, the total number of trainees assessed by this evaluation system is 712, resulting in savings of 720 man-hours and Rs 5.37 lakhs in costs.

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

N. Sandhya Shenoy and V.K.J. Rao

Objectives

- To develop a database on women agricultural professionals in India

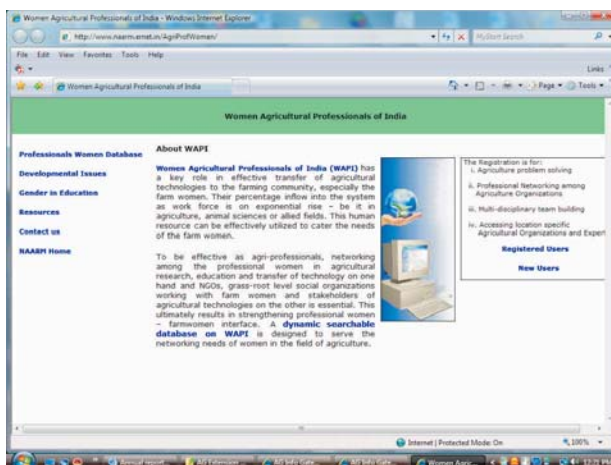
- To develop training module for capacity building

Progress

Updated the database on 'Women Agricultural Professionals in India (WAPI). This was tested and linked to NAARM website

<http://www.naarm.ernet.in/AgriProfWomen/>

About 720 entries of professional women in agriculture are included in the database from the SAUs, ICAR institutes, government organizations, NGOs, and KVKs. The 'online entry form with the link to database' was created to enable the online entry by professional women in agriculture nationwide.



The Integrated ICT model farm women database was implemented and updated. The database was developed using participatory needs assessment and problem prioritization, survey on ICTs use, access, preference, ICT user group creation for sustainability, knowledge test schedule preparation and analysis of knowledge gaps for major crops paddy, cotton and red gram, agriculture information modules preparation and procurement of information kiosk, group SMS based messaging to cell phones through internet web portals creating and using the users and experts groups, vernacular emailing, obtaining feedback for updating agri-information and e-business website template creation for women SHG groups of Aepoor and Dupahad villages of project area were attempted. Documentation of good practices on ICT application, impact and success story was done. One day workshop for project associates and commodity interest groups of farm women was organized on Dec. 4, 2010 for facilitating agri-business using

herbal products and agriculture information through ICTs at Aepoor, Nalgonda district. A rural camp was conducted on Jan. 22, 2011 at Aepoor on ICTs for agriculture information on SRI paddy cultivation and improved paddy varieties for seed production.

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

*K.M. Reddy, V.K. J. Rao and
G. R. K. Murthy*

Objectives

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

Progress

The salient outputs from the project include:

- Digital Media Resource Centre (DMRC) portals were developed after testing and standardization using PLONE and JOOMLA
- Several model Reusable Learning Objects (RLOs) were developed

Complete documentation has been developed for DMRC portal development using PLONE and Joomla CMSs. This includes procedures for Installation, Replication, Back-up and Port setting

- Protocols for managing digital media resources were standardized for
 - Compiling Asp .net
 - Inserting Flash in .ppt
 - Morphing in Flash
 - Query search download Option
 - Activating Quicktime Movies for the browser
 - Uploading through browser
- Manuals for Plone & Joomla customized Installation
 - Plone Replication procedure
 - Back-up procedure for PLONE
 - Port setting procedure for PLONE
- Port Management protocols
 - Compiling Asp .Net
 - Inserting Flash in ppt
 - Morphing Effect in Flash Using Shape Tween

- Query search Download Option
- Quicktime Movies on The Web

11. Digitally Enabled Customization of Information for Decision and Empowerment

*V.K. J. Rao, N. Sandhya Shenoy and
K.M. Reddy*

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 salient outputs from the project include:

- Procedure for creating interactive Learning objects was standardized. The following RLOs were developed:
 - Interactive type : 45
 - Instructional scorm content :3
 - Power point based (online) : 2
 - Open source SW based : 1
 - Multimedia authorware based: 48
 - ◆ Animal Science 22
 - ◆ Crop Science 23
 - ◆ Social Science 3
 - Video-based : 6
 - Power Point-based (off-line) :44
- SMS based messaging interfacing through web portals was tested.
- A PRA-based framework to customize the content of DMAT for a village knowledge centre was developed.
- Farmer information needs assessment to create a workable Digital Media Forum has been initiated.

12. Technology Delivery Models for Less Favoured Areas

B.S. Sontakki and R. Venkattakumar

Objective

- To design technology delivery models for promoting livelihoods security in less favoured areas

Progress

Less-favoured areas are characterized by low production and productivity, degraded soils, harsh climates, low precipitation, poor water resources, improper management practices, and higher risks for production / enterprises like crops, horticulture, animal husbandry, poultry, etc. In rural areas, especially in agriculture, there are many partners to farmers /entrepreneurs like State Departments, ICAR Institutes, Voluntary Organizations, Agricultural Universities, Farmers Interest Groups, Commodity Groups, etc.

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

At present, there are a number of technology delivery models, which are to some extent efficient in transfer of technology in the rural areas like - KVK model, ATMA model, ATIC model, IVLP model, etc., to reach the farmers. Generally, more than one technology delivery model is used for different enterprises in various parts of the country. Successful models or integration of models may be thought off for different enterprises and need to be fine-tuned in less favoured areas. This project aims to document technology delivery models that are in vogue in less favoured areas and evolve strategies for effective technology delivery models.

Technology delivery models to suit less favoured areas were reviewed. Based on review, a survey is being undertaken in selected less favoured districts to identify the technology delivery agencies and methods relevant to the stakeholders in these areas. Interim results are expected by March end.

13. Strengthening Statistical Computing for NARS

NAIP Consortia Lead Institution: Indian Agricultural Statistics Research Institute, New Delhi
Consortia Principal Investigator: Rajendra Prasad, IASRI, New Delhi

NAARM: M.N. Reddy (PI), A. Dhandapani (Co-PI & Nodal Officer) and G.P. Reddy (Co-PI)

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

The project aims at strengthening the statistical computing facilities in National Agricultural Research System by providing necessary resources in terms of facilities (software), trainers and trained man-power. It is expected that the facilities created would improve the data analysis skills of scientists leading to better interpretation of the results.

The major activities under the project are to organize workshops and training programmes in data analysis. Under the project, a high-end statistical computing environment, namely SAS® was made available to all the institutes under NARS. Two day installation training cum orientation workshop on SAS was organized during 16-17 June, 2010. The workshop was attended by 30 participants including 18 nodal officers from partner institutes under computing hub-8 of the project. The trainers training programme was held during June 28, 2010 - Aug. 2, 2010 and 29 trainers from 17 institutes had participated in the training programme. Five training programmes for researchers were scheduled during the year and a total of 91 participants from different ICAR/SAUs were already trained in data analysis using SAS® and another 20 participants are expected to be trained by the end of March, 2011.

Under the All-India Coordinated Research Programmes (AICRPs), data was collected on the performance of new materials from different centres and analyzed partially. The statistical analysis for extracting information about how the new materials perform over the locations usually

called combined analysis or pooled analysis, involve several steps and require statistical expertise. To facilitate ordinary scientists in such situations, a programme was developed in SAS® and is presently under testing. These programmes require basic information about the data set to use, roles of individual variables present in the data set (location, treatment, block variables etc.), tests required and significance level from the user (Fig.13.1) to perform the analysis. The first programme would perform combined analysis of experiments conducted at different locations in Randomized Block Design. Such experiments are common for initial varietal selection in crop improvement programs. The programme can be operated either from SAS Enterprise Guide or from Microsoft Word (using SAS Add-On for Microsoft Add-on). The programme produces output which contains a summary table of means, ranks, group letters, CV, etc., of treatments (Fig.13.2) at different locations and followed by the combined analysis over locations. It also provides the output of different steps in combined analysis such as Bartlett's test for homogeneity, transformation of data is required or not and ANOVA table for the combined analysis. Besides, Bi-Plot graphs are also produced automatically, if the treatment x location interaction is significant. Another programme which performs the similar analysis but for the experiments conducted in Alpha Designs is under development.

Under the project, self-learning training manuals were developed for learning and using SAS. The following modules were now available: Introduction to SAS, Design of Experiments, Graphics using SAS, Logistic Regression, Cluster Analysis and Multiple Regression. Also, several exercises were developed which are being used both in the training programmes as well as in FOCARS.

Creation of special programs such as Combined Analysis using SAS would be highly useful as it provides convenient way of performing analysis with minimum knowledge of SAS. Several such programs are required to be developed for specialized analyses that are routinely required like creation of experimental plans, estimating genetic parameters, etc.

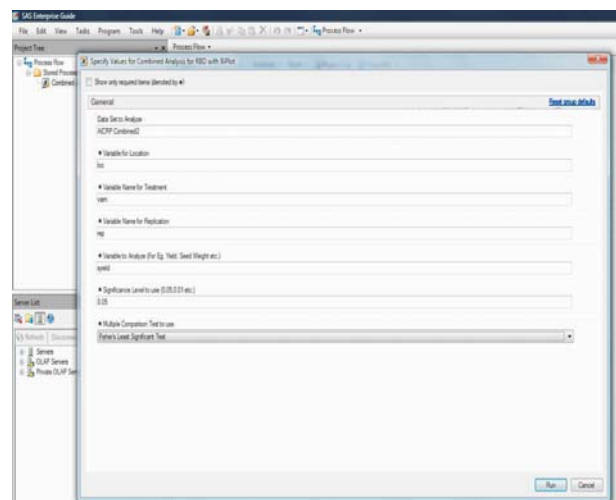


Fig.13. Input screen for combined analysis of Randomized Block Design conducted over different locations

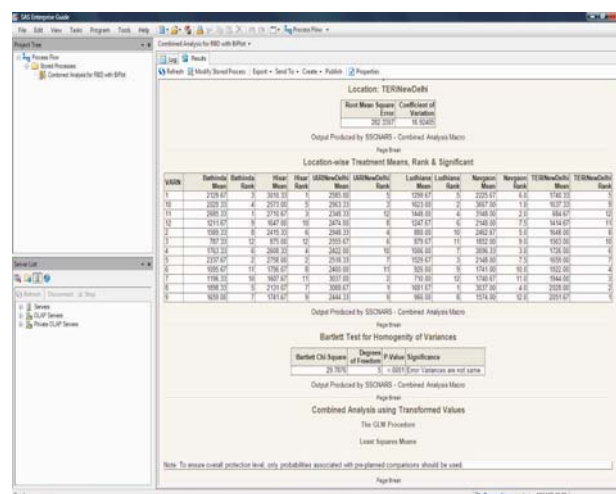


Fig. 13.. Part of the output from the programme

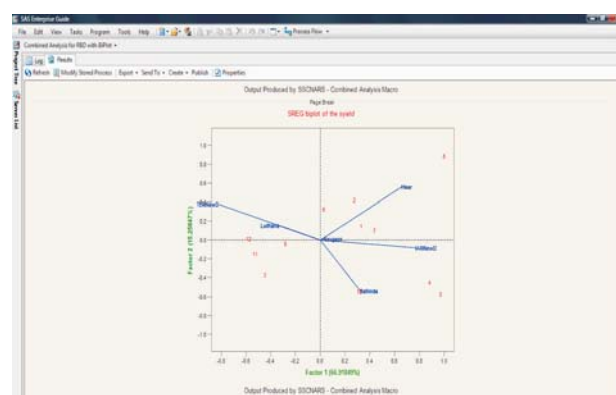


Fig.13.. Output showing Bi-Plot analysis

Organization and Management for Strengthening Agricultural Research

14. Assessment of Future Human Capital Requirements in Agriculture

*D. Rama Rao, S.K. Nanda, N. Sandhya
Shenoy, Bharat S. Sontakki and G.P. Reddy,
NAARM*

*Rashmi Agrawal, I.C. Awasthi, G.P. Joshi,
Inder Kumar, Sanchita Bhattacharya and
Sadanand Sahu, IAMR*

Objectives

- To assess the trend in supply-demand and employment of trained manpower in agriculture and allied sectors
- To develop a manpower information system for planning trained manpower in agriculture and allied sectors
- To evaluate institutional set up, interface between agricultural graduates with various stakeholders and the impact of diversification of agriculture on skill requirements
- To develop a system dynamics model for forecasting and scenario generation of human power requirement and evolve prospective human resource development strategies

Progress

NAARM is carrying out the project in partnership with IAMR, New Delhi. The project was launched in May 2009. The study focuses on technical manpower in agriculture and allied sectors - assess the trend in supply-demand and employment of trained manpower, forecast trained manpower requirement and evolve prospective human resource development strategies.

Project information is made available online through project website. A nation-wide survey was completed covering agricultural universities/ colleges to assess supply of trained graduates. Demand information was obtained from survey of establishments and individuals, on current and changing employment scenarios and manpower

structure and changing economic environment (including sector growth). Four workshops were organized to identify the broad issues. Nine Focus Group Discussions were organized on specific themes. Details of work done are summarized below:

- Supply data collected from 40 universities and 50 colleges outside SAUs.
- Demand data collected from about 4800 establishments across the country.
- Individual perceptions were obtained from about 4880 agriculture graduates from many organizations in the country.
- Developed a database on manpower information and used for analysis.
- Qualitative aspects of agricultural manpower demand and supply obtained through a number of focused group meetings organized with participation of various stake holders at various places. This information was used to compute demand following normative methods.
- Developed forecast reports for horticulture, crop sciences, and fisheries, dairy and veterinary sectors, and got feedback from select experts in association with sub sector organizations.

The current and forecast annual supply and demand of graduates in different disciplines are summarized in Table 14.1.

Table-14.1: Annual supply and demand for graduates

Sector	Current annual supply	Annual Demand		
		2010	2015	2020
Dairy Sciences Technology	970	990	1060	1500
Fisheries	650	1510	1800	2240
Veterinary and Animal Sciences	2100	2260	2550	2740
Horticulture	3100	3720	4750	6460
Agriculture	12100	10620	11330	12360

The forecasts imply a major redistribution of employment from the government to private sector. Knowledge and skills of graduates do not cater to the requirements of employers. The performance of current agricultural graduates' falls short of demand in a number of key areas; for example, jobs in private and all non-government sectors require better communication and managerial skills. Thus, there is a need to revisit the issue of agricultural education in India.

Constraints and suggestions

Absence of centralized data pertaining to intake and out-turn of students coupled with poor response from the SAUs and access to employment data from both public and private sectors were major roadblocks in progress of the project. The movement of officials for data collection to some extent was affected by the restrictions to travel with the national carrier only.

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

D. Rama Rao and S.K. Nanda

Objectives

- To analyse various factors/ components/ variables contributing to the fly ash situation and to forecast fly ash scenario in the country using technological forecasting methods
- To develop a systems dynamic model for forecasting and scenario generation and evolve prospective development strategies
- To provide policy guide lines for strategic planning on fly ash

Progress

Fly ash utilization in the country increased from one million tonnes during 1994 to about 80 million tonnes during current year. The planned efforts through technological developments in the last two decades have made fly ash as a key resource of economic significance. The study is proposed to provide policy guidelines and strategies for fly ash utilization. The progress during the year is summarized:

- Prepared concept note with pros and cons, and limits of fly ash use in agriculture.

- Organized two brainstorming workshops to identify issues, constraints and potential of fly ash use in agriculture. The brainstorming workshops provided information on constraints and potential for fly ash use in India, specific technologies that are likely to emerge in the future, their impact and resources required to meet the future demands.

The following key issues were identified from the experts' interaction:

- Multiple use of fly ash in agriculture: Fly ash is a source of micro nutrients and silica. For the higher crop production the bulk utilization and blending with organics will be preferred. The other applications are such as fertilizer mixture, filler material, reclamation of mine spoils and waste land development.
- Limits and presumptive negative impacts: The limits in fly ash application in agriculture are periodicity, dosage, transport cost and possible bioaccumulation in food chain, soil and water.
- Research Agenda: The fly ash research agenda should be location-specific and need of coordinated/network project for long term application studies.
- Communication and Marketing: Need of incremental awareness through media in regional languages. The awareness on policy options and potential benefits among all the stakeholders.
- Policy framework: The policies and regulations are to be framed on issues such as transport by plants to farmers, cess from industrial use or mandatory use of about 40% of pond ash for Agriculture. Agriculture and Environment ministries to support R&D funding and Power ministry to ensure compliance by power plants to achieve targets on utilization levels for agriculture.
- Institutional arrangements: Need for a central agency, an inter-ministerial institution, to co-ordinate all activities associated with use of fly ash in agriculture and other sectors.

Delphi survey: As the available work on fly ash in the country is not sufficient, it is proposed to obtain opinions of experts on certain futuristic aspects

through expert consultation. The following key issues were short listed for Delphi survey:

- Desired quantity of fly ash to be mandated for use in agriculture (percentage of total produced).
- Priority of fly ash used for various purposes in agriculture: Wasteland reclamation, Micronutrient supplement, Correction of soil pH, Improve soil texture, Reduce crust formation and Reclamation of mine spoils, etc.
- Recommended safe dose of fly ash for agriculture purpose (tonnes / ha).
- Level of bioaccumulation on use of safe dose of fly ash for agriculture.
- Suggestions to overcome the fly ash transportation cost from plant site to farmers fields.
- Arrangements or organizational structure for central agency for promoting fly ash use in agriculture.

16. Performance Assessment of Agricultural Universities

J. Challa

Objectives

- To develop an appropriate methodology for performance assessment of Agricultural Universities on benchmark indications such as education, research, extension, consultancy and governance
- To enhance global competitiveness of agricultural universities and to attract performance based funding
- To standardize and rationalize the mechanism of Sardar Patel Award for Outstanding Agricultural University

Progress

- A working paper was prepared and presented in the brainstorming workshop conducted on Sept. 5 and 6, 2008. Benchmark indicators,

parameters and their weightages were identified. The workshop proceedings were documented, printed and communicated to ICAR and SAUs.

- Presented at IAUA convention held on Dec. 4 and 5, 2008 at AAU, Anand.
- Presented at ICAR-VCs conference held on Feb. 16-17, 2009 at New Delhi.
- Punjab Agricultural University responded with suggestions for certain modifications on the indicators and parameters in 2009.
- Eleven Universities appointed Nodal Officers for the purpose, and others are in the process of appointing Nodal Officers.

The following eight indicators and their weights identified were:

Sl. No.	Benchmark Indicator	No. of Participants	Indicator Weight
1.	Education	8	22
2.	Research	10	18
3.	Extension	11	15
4.	Organization and Management	6	10
5.	Social Relevance	6	10
6.	Resource Generation	9	8
7.	Infrastructure	10	10
8.	Networking & Collaboration	6	7

- 66 parameters identified for the eight broad indicators
- Awaiting feedback responses from the Universities

17. Change Management for Promoting Innovation

P. Manikandan and R.V.S. Rao

Objective

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

Progress

The change management model for agricultural research management points out five important areas that need consideration for change in agricultural research. These are managing self and leadership development, facilitation for change, managing research and quality of science, facilitating partnership, and managing teamwork. Two of these aspects, viz. facilitation for change and managing teamwork were studied.

a) Facilitation for change

Information was collected from 174 scientists and teachers, covering 19 ICAR institutes and 17 Agricultural Universities, focusing on some of the important dimensions related to facilitation of organizational change. These dimensions cover both organizational aspects and also individual characteristics, all of which contribute towards facilitation of change in the organization. The results are summarized in the table below.

Dimensions	Indications		
	(figures in parentheses indicate the percent respondents belonging to the category)		
Readiness to change	High (32.4)	Moderate (52.3)	Low (15.3)
Change orientation	Initiators (11.5)	Planners (83.8)	Resistors (4.7)
Organizational innovation	Good (34.5)	Moderate (54.2)	Low (11.3)
Organizational culture	High (13.0)	Moderate (39.7)	Low (47.3)
Assertiveness	Assertive (80.5)	Aggressive (1.3)	Non-assertive (18.2)
Power dimension	Expert (22.7)	Personal (71.6)	Position (5.7)

The results indicate that institutional mechanisms and personal dimensions are not very conducive for change in the organization.

b) Teamwork

A study was carried out to understand the values and skills for task and maintenance functions for

teamwork and the roles played by the scientists in teams in agricultural research institutes. Information collected from 127 scientists indicated that the scientists were found to fall under the fully-functioning team member profile, with high values and skills for both task and maintenance functions. Though the skills were correlated with the values the scientists hold for the task and maintenance functions, the values were found to account for only 13.4 to 28.5 per cent of the variations for the task and maintenance skills. Whereas the scientists were found to be playing equally well all the four roles, viz. leader, doer, thinker, and career in the teams, they were found to be stronger in career and leader roles as compared to the other two roles.

18. Leadership Effectiveness for Promoting Innovation

R.V.S. Rao and P. Manikandan

Objectives

- To identify the nature of leadership in research institutions of NARS
- To measure the leadership qualities and effectiveness of leaders
- To suggest measures for enhancing leadership
- To formulate recommendations for HRD in research organizations for leadership

Progress

Information was collected from 143 scientists and teachers of the National Agricultural Research System. The study focused on the various components of leadership as practiced in the National Agricultural Research System (NARS). Various instruments were used to study leadership behavior and style to identify leader characteristics, traits and performance of the respondents. The components of leadership behaviour studied included leadership style, skills and effectiveness, emotional intelligence, problem solving, intuition, and type of leadership.

In case of leadership style it was observed about 58% of respondents had selling as the primary style

followed by 26% of participating style. As observed earlier, delegating style was the least style with 2% respondents using it as their primary style. As a secondary option, participating style (37%) was followed by telling style (32%) and the delegating was the least option (2%). The style effectiveness indicated that 40.5% are in fair, 35.5% in good, 19% were in poor, 3.3% in very good and 1.7% were in very poor position.

In skill category it was observed that a majority were very good at administrative skills (55.9% level) than interpersonal skill (47.5%) and conceptual skill (46.8%).

In Leadership effectiveness it was seen that only 13.8% were effective, 42.5% moderately effective and 43.7% need improvement.

Regarding the emotional intelligence, 86.1% felt that they had good emotional intelligence, 78.5% had good contextual thinking, 82.6% had good directional clarity, 68.1% had good creative assimilation, 72.2% were good at change orchestration, 89.6% were good at people enablement, 81.3% were good at reciprocal communication and 83.3% felt that they had good drive and persistence.

In case of problem solving person, it was observed that 86.1% needed improvement and 13.9% were good at problem solving.

It was observed that 59.9% were good at intuition followed by 50.7% good at thinking, 28.9% good at feeling and 18.3% good at sensing. In moderate position respondents in sensing (78.9%) were followed by feeling (69.7), thinking (48.6%) and intuitive (38.7%). Finally under below average category less respondents were there for sensing (2.8%) followed by intuitive and feeling (1.4%) and thinking (0.7%).

In leadership skill category, it was observed that 64.7% respondents were in good category when compared to 32.3% in average and 3% in needs improvement category.

For leadership type, it was seen that only one respondent was in very high in participative leadership, but there were no respondents in very

high authoritative and delegative types. In the high category, 46.2% were in participative followed by delegative (25.2%) and authoritative (11.9%). For moderate category, 56.6% respondents were in delegative followed by authoritative (51%) and participative (45.5%). Under average level 37.1% respondents in authoritative category followed by delegative (18.2%) and participative (7.7%).

19. Performance Enhancement for Promoting Innovation

R.V.S. Rao and P. Manikandan

Objectives

- To identify key performance drivers that influence performance at the individual, team and organizational levels
- To identify different ways used by researchers and their superiors to encourage and motivate research scientists to develop and utilize their full potential
- To identify the key developmental and training needs for achieving excellence in researchers' performance
- To find out how does the existing employee performance management system support high performance
- To find out different formal and informal assessment methods and measures used to determine employee well being, satisfaction and motivation
- To find out how organizations maintain a safe and healthy work environment

Progress

The response was collected from 143 scientists and teachers in the system. In the work place environment at individual level, it was seen that for 'creative continuous learning opportunity', 65.6% of respondents were in below normative average and 34.4% were above normative average. For 'promoting inquiry and dialogue in organization', 65.6% of respondents were in below normative

average and 34.4% were in above normative average. Under 'encourage collaboration and team learning', 68.8% of respondents were in below normative average and 31.2% above normative average. In the category 'creates systems to capture and share learning', it was seen that 59.4% of respondents were in above normative average and 40.6% were below normative average. In 'empower people towards a collective vision', 69.5% of respondents were in below normative average and 30.5% above normative average. In case of 'connect the organization to its environment', 67.2% of respondents were in below normative average and 32.8% above normative average. Finally in the case of 'provide strategic leadership for learning', 69.5% of respondents were in below and 30.5% above normative average.

In the work place environment at organizational level, it was seen that for 'creative continuous learning opportunity', 59.4% of respondent's organizations were in below normative average and 40.6% were above normative average. For 'promoting inquiry and dialogue in organization', 56.3% of respondent's organizations were in below normative average and 43.7% were in above normative average. Under 'encourage collaboration and team learning', 63.3% of respondent's organizations were in below normative average and 36.7% above normative average. In the category 'creates systems to capture and share learning', it was seen that 52.3% of respondent's organizations were in above normative average and 47.7% were below normative average. In 'empower people towards a collective vision', 58.6% of respondent's organizations were in below normative average and 41.4% above normative average. In case of 'connect the organization to its environment', 63.3% of respondent's organizations were in below normative average and 36.7% above normative average. Finally in the case of 'provide strategic leadership for learning', 62.5% of respondent's organizations were in below and 37.5% above normative average.

Regarding the work place environment, 37.7% felt that their environment was good and 16.9% were in excellent. However, 45.4% respondents felt that their work environment is in needs improvement position.

In case of team performance it was observed that 56.7% respondents were in the needs improvement scale while 43.3% were in sound shape scale. In Organization's performance assessment, the scale was classified into very good, good, average and below average. Under this 46.7% respondents were good, 26.7% were average, 20% were in very good and 6.6% were in below average level.

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

K.H. Rao, R.V.S. Rao, B.S. Sontakki and G.P. Reddy

Objectives

- To identify the indicators of organizational citizenship behavior to work in teams cutting across the disciplines and institutions
- To measure and analyze organization citizenship behavior among personnel of NARS
- To determine the antecedents of organization citizenship behavior
- To develop strategic plan for promoting organization citizenship behavior of scientific personnel working in consortiums

Progress

Organization citizenship behavior has been recognized to improve the organizational effectiveness through: a) improved co-worker and managerial productivity; b) superior efficiency in resource use and allocation; c) reduced maintenance expenses; d) better coordination of organizational activities across individuals, groups, and functional departments; e) increased stability in the organization's performance; and f) enhanced organizational capability to adapt effectively to environmental changes. The emergence of effective strategies to promote organizational citizenship behavior provides new means to enhance the efficiency and effectiveness of the organization. Integrating these approaches with sound technological background provide the organization, needed strength for global competitiveness.

The potential antecedents of Organizational Citizenship Behavior have been identified. They are organizational commitment, role perception, job satisfaction, level of motivation, leadership support, organizational climate, professional development and behavior based evaluation. Analysis of the profiles of 131 respondents considered for this study indicated that 55% belonged to ICAR institutes, while the remaining 45% belonged to State Agricultural/Veterinary & Animal Sciences Universities. 57% of the respondents were Professors/Principal Scientists followed by 35% Associate Professors and the rest of 8% are Assistant Professors/Scientists. This exhibits the reverse pyramid structure of available manpower, unlike the desired structure of standard pyramid of organizations manpower distribution. This clearly indicates that the Assistant Professors/Scientists recruitment has not taken place during the last several years. NARS has to take immediate steps for acquisition of young talents into the system to maintain the right proportion of young & energetic faculty/scientists and experienced & thoughtful academic/research leadership. Of the total respondents, only 16% are females, which is much below the national target of one third (33%) of work force indicating the need for encouraging the female talents in to the academic/research area in agriculture. As far as qualification of the respondents is concerned, 94% possessed doctorate degree in the area of their specialization.

Detailed analysis of the organizational commitment revealed that about 50% of the respondents in ICAR system showed high level of commitment as compared to 32% in SAU system. Further analysis of organizational commitment in terms of a) affective commitment b) continuance commitment c) normative commitment has been carried out.

1. About 70% of the respondents in ICAR system showed affective commitment compared to that of 50% in SAU system. Affective commitment is defined as emotional attachment to the organization such that the strongly committed individual identifies with, is involved in and enjoys membership in the organization. Hence an individual strongly pursue the goals of the

organization and desires to remain a part of the organization.

2. About 45% of the scientists in ICAR institutions exhibited normative commitment as against 30% of faculty members in State Agricultural Universities. Normative commitment refers to the employees' feelings of obligation to remain within the organization. The individuals with strong normative commitment believe that they should stay because they consider it the right and moral thing to do.
3. In ICAR institutions, 32% scientists hold continuance commitment while in SAUs, it is 28% for faculty members. Continuance commitment refers to the recognition of the costs associated with discontinuing the participation in the organization. The individual remains with the organization because of perceived loss of sunken cost. The people with continuance commitment believe that he/she invested a great deal of effort and time and hence feel better to remain in the organization.

The analysis of data on other antecedents of organizational citizenship behavior such as role perception, level of motivation, job satisfaction and workload, and leadership support is under progress.

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

S.K. Nanda

Objective

- To develop a sufficiently general analytical and knowledge based innovation management framework and innovation quality metrics that can be applied across different scales and sectors, for assessing the innovations and its quality in various agricultural R&D organizations

Progress

The interrelationship between the level of quality management in the R& D and the performance of

resultant innovations in an organization is a complex one. The exploration and understanding of this interrelationship is important from the prospects of effective R&D management. The present work attempts to develop a rational framework for innovation quality management.

A method for mapping innovation performance and quality of agricultural research and development organizations (ARDOs) through Index matrix has been developed. The methodology measures the innovation quality management through 11 weighted dimensions. These are Organization Infrastructure, Leadership, Governance System, Knowledge Management System, Strategic Quality Management, Human Resource Management, Organization Culture, Innovation Inputs, Process Management, Output Performance and Social Relevance.

The performance of innovation is quantified considering three major elements i.e., the reach, significance and potency. These two concepts are integrated in a 4x4 relational matrix to project overall innovation quality scenario (Fig.21.1). The sixteen cells of the matrix represent combinations of scenarios ranging from the least preferred one (very low innovation quality and very low innovation performance) to the most desirable (high innovation quality and innovation performance). Mapping and positioning of an organization and the innovation in any of these sixteen cells, facilitate in assessing the current status and drawing up strategic plan for necessary intervention to quality and performance of innovation.

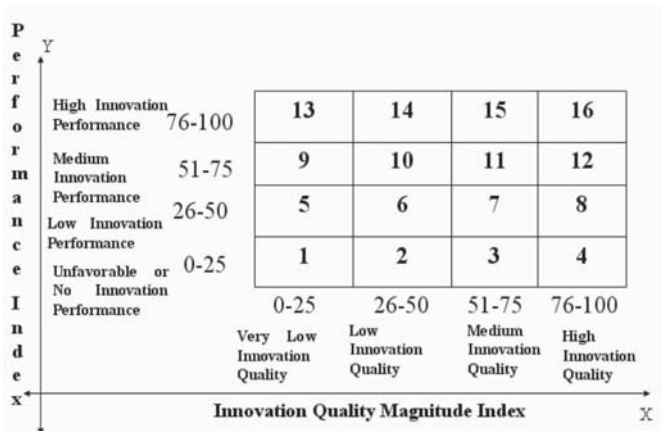


Fig.21.1: Innovation Quality Vs Performance Matrix

The innovation quality and performance matrix will help in increasing the organization's operational efficiencies. Though the matrix is developed using data from agricultural research organizations, the matrix could be adopted for similar R&D organization in other disciplines.

Agri-marketing and Value Chain Management

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

G.P. Reddy, K.H. Rao, M.N. Reddy N.H. Rao, Ranjit Kumar and P.C. Meena

Objectives

- To analyze rural agro-industrial systems and post-farm aspects of the supply chain
- To identify and analyze the market structure, marketing, processing enterprises and institutional mechanisms needed to raise the access of rural households to markets' information
- To identify and analyze alternatives for enhancing the contribution to income, food security and employment of the rural poor from value chain management
- To identify the constraints to the development of value added activities and rural agro- based industries

Progress

i. Value chains and Retailing of Fresh Fruits and Vegetables in Andhra Pradesh

The study on retailing was undertaken in Andhra Pradesh to examine growth and performance of modern retailing and its impact on traditional retailers. The study has indicated that the number of players is less in modern retailing than in the traditional retailing. Vertical analysis between two chains has indicated the same results

Fig.22.1: Distribution of gross value in traditional and modern retailer chains in Vegetables

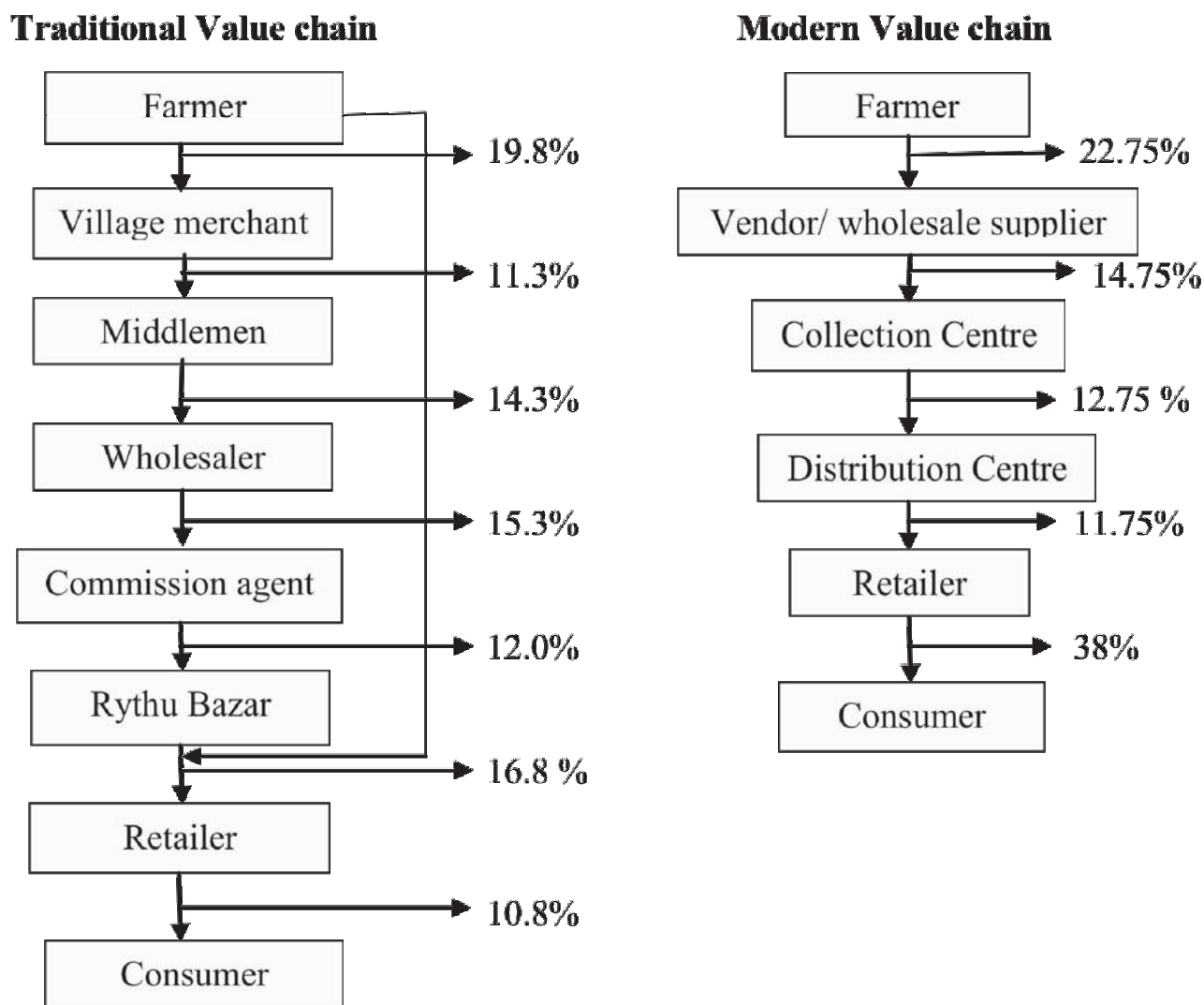


Fig.22.1 shows the percent distribution of gross value within each chain. These values are based on the average prices received for five major vegetables, namely: tomato, cabbage, brinjal, okra, local bean. The price data were collected at each level of transaction starting from farmer to retailers. Vertical analysis within a chain as well as between the two chains. For instance, in case of vertical distribution in the traditional value chain, 19.8 per cent of the gross value goes to farmers, 11.3 per cent goes to village merchant, 14.3 per cent goes to middlemen, 15.3 per cent goes to wholesalers,

12.0 per cent goes to commission agent, 16.8 per cent goes to rythu bazaar and the remaining 10.8 per cent goes to traditional retailers. Thus, the farmers rank first, and middlemen and wholesalers rank second, whereas in modern retailing, supermarkets receive 38 per cent of the total gross value. The study has revealed that there are both demand and supply side factors that contribute to the emergence of traditional and modern retailing. Hence, efficient, value chain management will certainly add value and help in bringing the produce to the market.

Modern retail chain impact on traditional retail

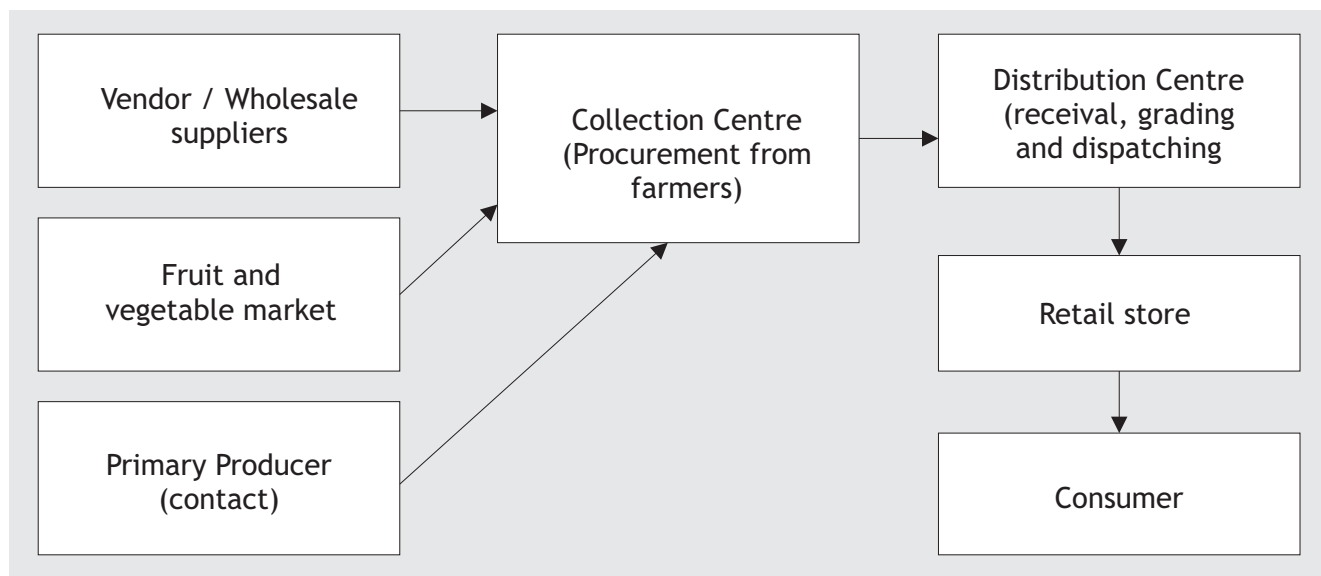


Fig.22.2: Value chain of a fruit and vegetables modern retail chain in Andhra Pradesh

The retail revolution is likely to have far reaching implications for the stakeholders including growers, wholesalers and traders in the traditional market. It may also benefit the small retailers. Of course the extent of impact will depend on the share of organized retail and the involvement of small and marginal farmers who are involved in the production of these selected crops. There is a competitive response from traditional retailers through improved business practices and technology upgradation. Small retailers have been extending more credit to attract and retain customers.

ii. Institutional Innovations for Contract Poultry Farming in Andhra Pradesh - A Case study of Suguna Foods

G.P. Reddy , P.C. Meena and Ranjit kumar

The increasing number of companies in contract farming especially in the poultry sector and the awareness among the farming community about the contract production and marketing is helping improvising and improving the living standards of the farmers and their over all development by not mainly depending on agriculture. The study tries to explore the new institutional and innovation methods adopted by the producers involved in

contract and non contract farming and how these methods help in reducing the overall transaction and marketing cost for the producer and in turn help in getting more profits by increasing the total body mass by increasing the FCR(Feed conversion ratio). This case also tries to highlight the advantages (marketing of the produce, price incentives in case of fluctuations) a producer can get by entering in the contract with major companies which is the current trend followed in poultry sector. The case study also highlights the drawbacks and disadvantages of both contract and non-contracting farming.

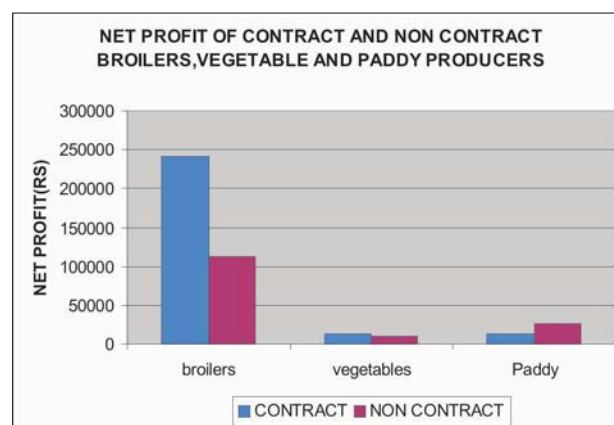


Fig 22.3 Net profit of contract and non-contract producers

It can be observed from the above figure that, when compared to vegetable and field crop cultivation, the farmers or producers prefer to rear of the poultry birds even though the production risks are very high in broiler management. But the financial gains are high after completion of each cycle when compared to crop production. In contract farming the benefits to the contract growers in comparison to non contract growers is much higher and availability of funds helps the contract farmer to shifts his risks to the processors. The results also indicated that the contract producer is more beneficial when compared to the non contract poultry growers because he has the advantages of skills, experience and access to credit and market when compared independent growers.

Governance and Institutional Arrangements in Areas of Topical Issues

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

R. Kalpana Sastry and S.K. Soam

Objectives

- To review current experiences in relation to developing patents, PVP and copyrights in Indian agriculture
- To analyze the effectiveness of current IP policy measures as related to patents, copyrights and PVP operating in public system
- To develop suitable management options of IPs resulting from blend of resources of PP sectors

Progress

An analysis of forms of IP protection by R&D personnel engaged in fisheries and agricultural engineering research was done using questionnaire and interview methods.

For fisheries research, initial results reveal that IP protection is in a nascent stage and most of the technologies in the market have been licensed

without IP protection. The potential for protection of technologies is encouraging. Further analysis is in progress.

With respect to agricultural engineering research, data on patent and other forms of protection of agricultural engineering research products collected from HPKV, Palampur and CIPHET, Ludhiana was analyzed. It was found that IP protection is weak, and most of the products are licensed without IP protection. The inventions are mostly suited to the small entrepreneurs therefore a networking with these stakeholders is essential. The licensing amount is being fixed arbitrarily and without a scientific and economic assessment.

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

S.K. Soam and R. Kalpana Sastry

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

Progress

A comprehensive database, consisting of GI products in agriculture and related off farm commodities, was created. A Geographical Information system (GIS) has been developed to generate GI maps for the purpose of complete integration of GI portfolio.

An exercise of valuation of biodiversity in biotechnological inventions was done using Analytic Hierarchy Process (AHP). It helped in identifying and

prioritizing several criteria for valuation of biodiversity and biotechnological inventions.

During the process of data collection it was observed that ownership holders of GI do not completely reflect the representation of producers. It is therefore strongly suggested that the GI registry must encourage applications in the consortia mode from several associations. In almost all the registered products, post registration efforts regarding product development or market expansion are completely missing. For valuation of biodiversity and agricultural technologies a comprehensive approach with high level transparency is required.

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

R. Kalpana Sastry and Jyothi Badri

Objectives

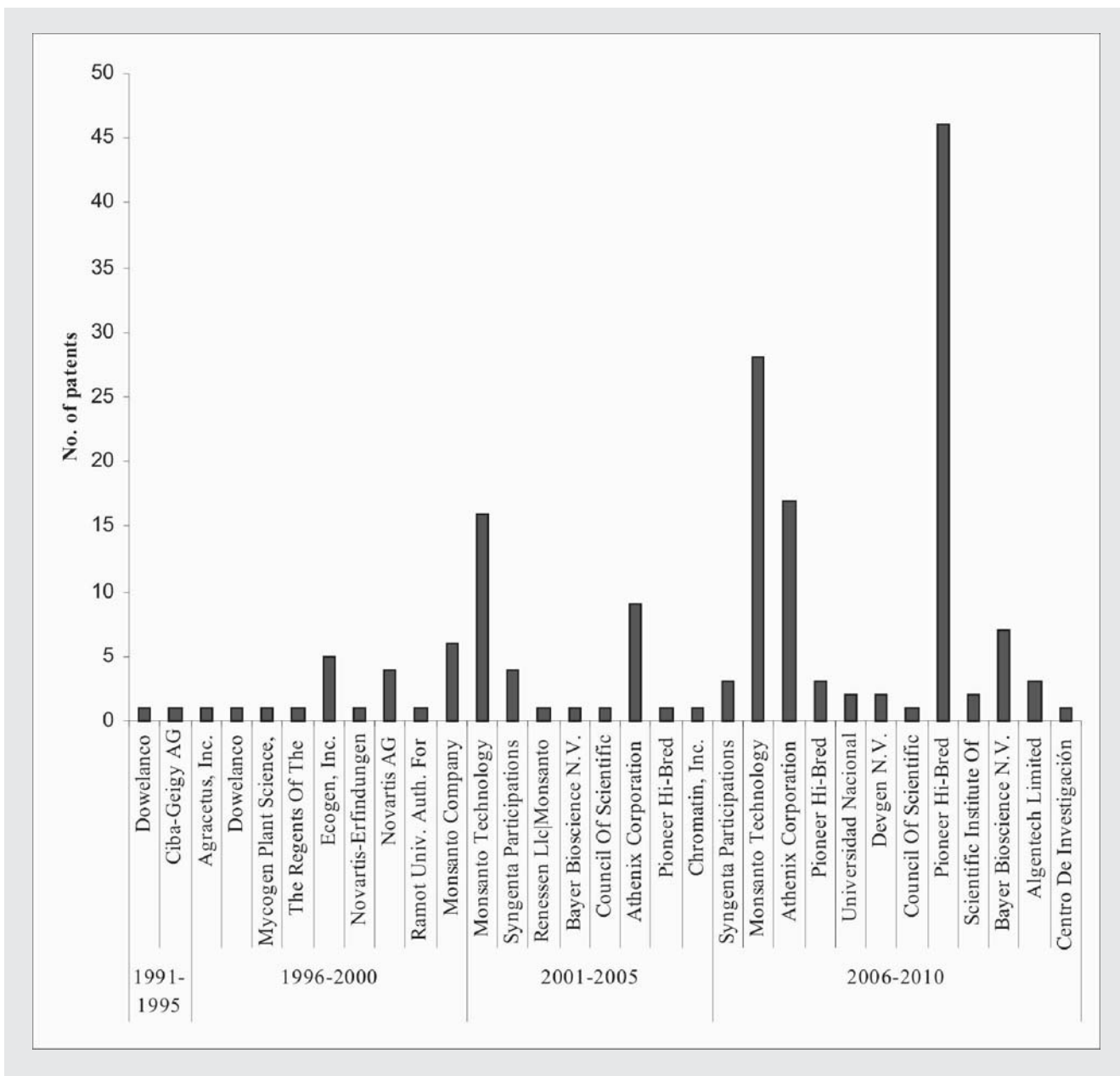
- To study the literature and review the evolving trends of IP management and technology transfer in agriculture- based public sector institutions.
- To understand issues of automatic patent analysis (APA), and use it as benchmark as a R&D indicator for developing strategies to acquire and use technologies in agri-R&D.
- To develop resource materials on knowledge protection strategies for project management in emerging areas.
- To develop repository of prior art databases in emerging areas viz. agri-biotechnology.

Progress

A study to assess development trends of Bt technology in cotton and current perspectives in commercialization of Bt crop was undertaken using patents as indicators. Patent landscape analysis was deployed to map bibliographic patterns such as publication and priority year, country, assignees and

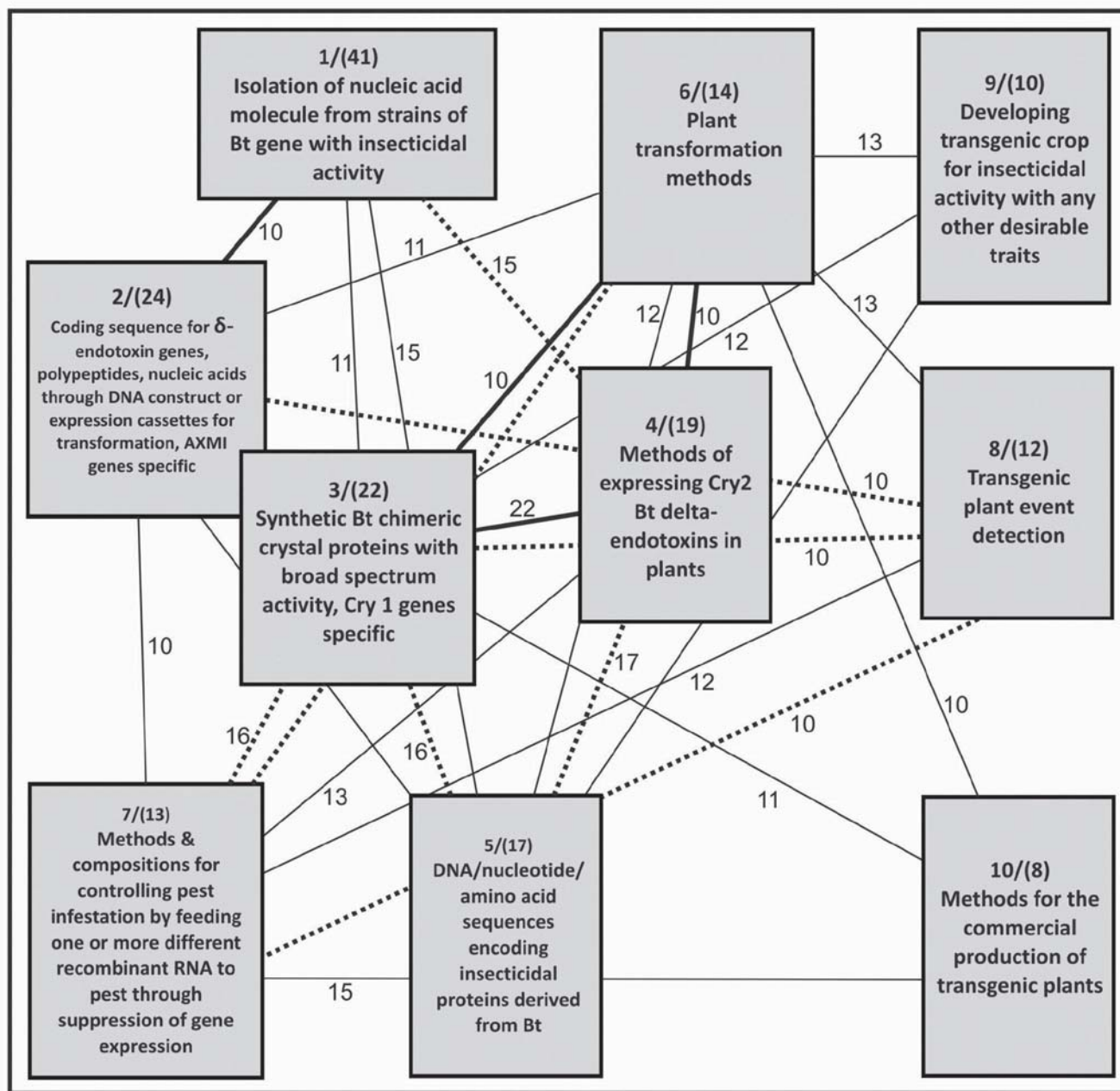
technological analysis of major research areas with applications in technology development. Using a multi-pronged strategy to locate maximum information from patents in this wide area, an attempt was made to understand trends of research activities through patents. The results obtained through various strategies were found to be in unison.

Results indicated that research and development activities in these technologies are on upward trajectory with involvement of several agencies, majority being private companies. Since 2000, public sector organizations and universities at global level and from 2006 in India are now part of set of patent owners. This is a significant development as these institutions can also become major focal points for negotiations for users engaged in deployment processes of the Bt based tools for genetically improving cotton. On the aspect of comparative Strength of Assignees in Bt Cotton Technology, the patent data was classified into the various categories of assignees viz. corporate sector comprising of industrial organizations and corporate bodies, institution sector comprising academic institutions, government sector and public funding agencies, individuals with no institutional affiliation and collaborations between either public-private or public-public and private-private. The analysis indicated that industrial organizations registered maximum patents (86%) followed by independent investors (7%), institutes in public domains including universities, R&D centres etc., (4%), and collaborations between private-private organizations (3%), and public-public organizations (1%). Interestingly, there was no collaboration between public-private organizations in the data set studied. A detailed analysis of assignees against a time line with major periods (at five yearly intervals) from 1991 was also done. Data revealed the existence of technology providers like Agracetus (bought by Monsanto in 1995), Dowlanco, Ciba, Mycogen, etc. Distinct shift patterns were observed starting late nineties where major assignees included Monsanto, Ecogen and rise of Syngenta, Pioneer Hi-Bred as major holders in the last decade.



In terms of technology assessment, increasing trends were observed in tactics available for deployment of insect resistance genes in cotton in areas viz., gene strategies, gene promoters, gene expression and building of transgenic features including detection processes. In terms of technology assessment, there appears to be more focus on *Bacillus thuringiensis* gene expression, embodiments, sequence ids of transformed bacteria, cells, tissues and seeds,

tolerance resistance and delta-endotoxins code for both insecticidal and herbicidal properties. In the light of recent reports of better performance of multiple gene stacked transgenics of cotton and preferences exhibited by farmers in India for such hybrids and considering the trends through patent analysis, it is important focus R&D programmes in these directions.



*Thick line represents first level of similarity with close proximity between 2 clusters of patents, dotted line represents second level of similarity with moderate proximity, thin line represents third level of similarity with distant proximity. Figures in parenthesis represent number of patents in that cluster and those on lines indicate percent similarity between two clusters

Fig.25.1. Patent Cluster Map

The study also illustrated the crowded domain of technology providers and the need to build strategic partnership platforms for effective use of the products. The level of knowledge base in development of these technologies is extremely multi-layered with involvement of multiple players. With restrictive legal property ownership issues in

place in most countries as part of TRIPS compliance processes, it can be expected that costs for deployment of such Bt technologies may get enhanced and, thereby, increase transactional budgets of the technology developers and deployment agencies.

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

K. Srinivas, Ranjit Kumar, P.C. Meena and D. Babu

Objective

- Research prioritization for commodities in the 12th plan

Progress

The public investments in research, extension, and infrastructure along with crop production strategies have resulted in increased agricultural production. The investment highly scattered to certain pockets only. The use of modern inputs may also induce an upward shift in the production function to the extent that a technological change is embodied in them. The use of modern inputs in terms of new variety seeds, fertilizers, pesticides, modern agronomic practices in majority of area in India are very low. While growth in output can be achieved by using higher and higher level of inputs, this may not be sustainable in the long run if incremental output involves increasing doses of incremental inputs. The sustainable growth in the long run necessitates faster growth in output compared to the inputs. At the farmers' level, sustainability concerns are being expressed in several ways. Due to increase in the cost of inputs and quantity of input for crop production, the growth in technological gains to farmers is declining.

Many farmers believe that the input levels have to be continuously increased in order to maintain the yield. The growth studies had shown the diminishing returns to scale with the increase in variable inputs. The total productivity of the crop sector has now started showing the signs of decline at some places and stagnation at many places. Under this backdrop, the present study is an attempt to suggest the policy for priority setting and also see the productivity performance and impact of agricultural technology for crops. This will serve as an informative guide for resource allocation and research priorities. The analysis will be based on cross section and time series data on production of various crops and technologies. Time series data will be used subject to availability of data sources.

Main objective of the study was to prioritize the agricultural research investment keeping in view the efficiency, equity and sustainability to achieve

optimum allocation of research and development aspects in agriculture. Congruence approach was used in this study. It begins with baseline for efficiency based on extensity parameters like value of output (VOP) shares and then incorporates the other extensity parameters for equity (poverty and no of small holders) and sustainability (land degradation). This forms the initial baseline (IBL) for the overall objective. Then modifiers were selected which can affect these parameters. These modifiers were yield gaps, cropping intensity, share of small and marginal farmers in total workforce and rainfall variability. Final baseline (FBL) can be obtained by incorporating these modifiers in the initial baseline using proper signs.

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 than efficiency as depicted by VOP. Table 26.1 classifies the states on this basis. In terms of research allocations the states like Arunachal Pradesh, Bihar, Delhi, H.P., J & K, M.P., Orissa, Tamil Nadu, Jharkhand, Chhattisgarh, A&N Island, D&N Haveli, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, and Nagaland needs 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. These allocations to above states will come from the kitty of the states whose ration is less than 0.95 (Assam, Goa, Gujarat, Haryana, Kerala, Maharashtra, Punjab, Rajasthan, West Bengal, Chandigarh, Daman and Diu, Lakshadweep and Pondicherry).

Table-26.1: Impact of FBL/VOP trade-off on research resource allocation

Ratio FBL/VOP	States
>1.05	Arunachal Pradesh, Bihar, Delhi, H.P., J & K, M.P., Orissa, Tamil Nadu, Jharkhand, Chattisgarh, A&N Island, D&N Haveli, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland
0.95-1.05	Andhra Pradesh, Karnataka, Tripura, Uttar Pradesh, Uttarakhand
<0.95	Assam, Goa, Gujarat, Haryana, Kerala, Maharashtra, Punjab, Rajasthan, West Bengal, Chandigarh, Daman and Diu, Lakshadweep and Pondicherry

Education

The Academy offers the following Post Graduate education programmes:

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

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

The Post Graduate Diploma in Management - Agriculture (PGDMA) is a two-year (6 trimesters) fully residential course approved by the All India Council for Technical Education (AICTE). The aim of the programme is to train graduates of agriculture and allied sciences in management of agribusiness.

The rapidly changing national and international agricultural landscape has opened up significant opportunities to those who have passion for excellence. One such opportunity is the ever-expanding food and agri-business arena with vast untapped potential for professional excellence and societal transformation. The most critical requirement of this booming sector is qualified and competent young professionals with accumulated domain expertise in agriculture and allied sciences. With a foresight of producing tomorrow's agri-business professionals, the Academy has initiated this PGDMA course at the most opportune time due to:

- Shift in strategy from agriculture to agribusiness to connect Indian farmers with markets for ensuring inclusive growth
- Rapidly transforming global and national scenario of agribusiness and related industry

- Rapidly transforming global and national scenario of agribusiness and related industry
- Growing demand for value added quality foods
- Increasing opportunities for the agribusiness sector in India to become global player of significance

The admission to the PG Diploma in Management (Agriculture) at the Academy is done through a rigorous selection procedure consisting of an All-India competitive written examination followed by group discussion and personal interview. The status of admissions up to now is as follows:

Sl. No.	Academic Programme	Duration	No. of Students	Programme Directors
01	PGDMA 2009-11	July 25, 2009 to July 24, 2011	24	G.P. Reddy K.H. Rao
02	PGDMA 2010-12	July 5, 2010 to July 4, 2012	20	A. Dhandapani G.P. Reddy
03	PGDMA 2011-13		Admission process initiated	A. Dhandapani K. Srinivas

Course Highlights

The programme aims at developing agribusiness leaders and entrepreneurs with a global perspective and strong commitment to sustainable growth of agriculture and rural development. The course curriculum has been designed based on intensive consultations and deliberations with senior executives from agri-business industries, financial institutions, NGOs, consultants, academicians and policy-advisors in the government. A team of 25 highly qualified and committed in-house faculty members will facilitate your learning and intellectual growth during and beyond the two-year PGDMA. Our core faculty has rich expertise in agricultural research, education management and

policy, information management and human resource planning and development. Leading experts and institution builders from public and private institutions in agriculture and agribusiness management will augment your learning and intellectual pursuits in areas of critical importance needed for professional excellence in this highly

competitive arena. Learning processes at the academy include class-room discussions, case studies, practical training, work visits, group assignments and project internship with well-established agri-business industries. Detailed course curriculum is available in NAARM website. Training in yoga and soft skills is compulsory for all students.

Courses offered during 2010-11

Area	Courses
First Year (batch of 2010-12)	
Agribusiness environment	<ol style="list-style-type: none"> 1. Institutional and policy environment 2. Agricultural and food systems
Analytical Foundations	<ol style="list-style-type: none"> 1. Managerial Economics 2. Statistics for Managers 3. Macroeconomics 4. Quantitative methods for Business
IT and Systems	<ol style="list-style-type: none"> 1. Computers and Information systems 2. Management Information Systems
Organizational and Leadership Essentials	<ol style="list-style-type: none"> 1. Human resources management 2. Organizational Behaviour 3. Business Communication I 4. Business Communication 2
Core business functions	<ol style="list-style-type: none"> 1. Marketing management 2. Market Research 3. Financial accounting 4. Managerial accounting 5. Financial management 6. Project management 7. Supply chain management
Agribusiness	<ol style="list-style-type: none"> 1. Agricultural finance 2. Market Research 3. Commodity Trading and Futures markets
Summer Internship	Placement in industries:
Second Year (batch of 2009-11)	
IT and Systems	<ol style="list-style-type: none"> 1. GIS in agribusiness 2. ERP in agribusiness 3. Business Analytics with SAS

Area	Courses
Agribusiness	<ol style="list-style-type: none"> 1. Agricultural finance and insurance 2. Commodity trading and futures markets 3. International trade in agriculture 4. Microfinance management 5. Agri-food Retail Management 6. Rural Marketing 7. Agribusiness strategy
Electives	<ol style="list-style-type: none"> 1. Contract farming 2. Marketing Communication and Advertisement 3. e-commerce in agribusiness management 4. Risk management in agribusiness
Project	<ol style="list-style-type: none"> 5. Independent study in an area of relevance to agribusiness under the supervision of faculty

Summer Internship in Industry (8 weeks)

2010 (batch of 2010) - 24 students	2011 (batch of 2012) - 20 students
Coromandel International	Reserve Bank of India
ITC - ABD	ITC-ABD
YES bank	SGS India
SGS India	John Deere
Reliance Retail	MCX
Keventer Fresh	MART
MCX	Sino-chem
Mahyco	Aditya Birla Retail Limited
Nuziveedu Seeds Limited	Nuziveedu Seeds Limited
US Agrigenetics	Vista Foods
Ganesh International	Kaushalya Foundation
INTAS Pharmaceuticals	
Mother Dairy	
Bharti-Walmart	

Placements

Students of PGDMA (2009-11) were offered final placements in the following companies:

- Aditya Birla Retail Limited
- NCDEX
- DSCL
- Nuziveedu Seeds Limited
- SAIFCO
- KRBL
- MART
- Vibha Seeds
- HDFC
- DevGen India
- Axis Bank
- Bayer
- Reliance Retail
- Sumitomo

Guest Faculty who interacted with students of Post Graduate Diploma in Management (Agriculture)

Name of the faculty	Organization/institute
Prof B.V.N. Sachendra	Faculty Member, Operations Management, Administrative Staff College of India, Hyderabad
Prof. Chetan Srivatsava	Faculty Member, Marketing Management, Central University, Hyderabad
Prof. Jagrook Dawra	Faculty Member, Market Research, ICFAI Business School
Prof. Laxmi Mantha	Faculty Member, Osmania University, Hyderabad
Prof. P. Jyothi	Faculty Member, School of Management Central University, Hyderabad
Prof. P.G. Chengappa	Former Vice-chancellor, UAS, Bangalore
Prof. Sreenivasa Gowda	former Head, Dept. of Agricultural Economics UAS, Bangalore
Dr Amarender Reddy	Business Development Manager National Spot Exchange Limited
Dr J. Surender Reddy	Marketing Officer, Directorate of Marketing and Inspection, GOI
Dr K.R. Rao	former Chief General Manager, NABARD
Dr K. Swaroopa Rani	Coordinator and Consultant, Agri and Rural Development consultancy Services
Sh. K. Durga Prasad	Chartered Accountant
Sh. K. Venkateswarlu	Former Director (Finance), National Mineral Development Corporation
Sh. M. Kameswara Rao	Managing Director, Future age Infrastructure India Limited
Sh. P. Bhanumurthy	Project Management Consultant
Sh. Sandip Mishra	Senior Manager (Operations), Heritage Foods
Sh. Debabrata Sarkar	Zonal Sales Manager (South & West), Monsanto
Dr M.K.S. Naidu	Zonal Manager, Oriental Insurance Company Limited
Sh. P.M. Mohanaiah	Chief General Manager, NABARD
Sh. Raghunath Reddy	State Project Manager, SERP (Society For Elimination Of Rural Poverty) Govt. of Andhra Pradesh
Sh. Rajendra Prasad Nadella	Director, Indian Retail School
Sh. Ramakrishnan	Chief General Manager, SIDBI
Dr V. Shanmugam	Chief Economist, MCX
Sh. Sudip Ghosh	Zonal Manager, PHI seeds limited, Dupont
Sh. Sundara Rajan	Former GM (Marketing), Parle Foods
Sh. Venkata Krishna Velugubanti	Retail Operations Manager, ITC
Sh. Ashok C. Khosla	Agri-business consultant
Sh. Kaushlendra	Managing Director, Kaushalya Foundation
Sh. L. Nagahari Krishna	Senior Manager, Yes Bank
Sh. L.P. Semwal	Director, Jagadamba Samiti
Shri. P. B. Suryaprakash Rao	Adviser, Priya Foods
Sh. Nikhil Sharma	Senior Consultant, MART
Sh. Raghavendra Mandavilli	Associate, Strategic Initiatives, Yes Bank
Sh. Tushar Pandey	Country Head, Yes Bank
Sh. Sundar Raj	Aditya Birla-Retail

Name of the faculty	Organization/institute
Sh. Arvind Choudhary	Bharti Walmart
Dr P. Shinoj	NCAP
Sh. Sreenivasan	International Export Consultant
Sh. M.V. Subramanyam	Managing Director, Mother Dairy, NARMAC
Sh. Haranath	Sr. Branch Manager, National Insurance Corporation
Dr K.V. Raman	Godrej Agro-vet

International Guest Faculty:

Name of the faculty	Organization/Institute
Prof. R. Vithala Rao	Cornell University, USA
Dr Ashok Gulati	International Food Policy Research Institute
Prof. Deepak Sirdeshmukh	North Carolina State University (USA)
Dr Keith Jones	Washington State University (USA)
Dr P.S. Birthal	ICRISAT

Students' achievements in co-curricular activities:

Team members	Name of Event	Name of the college/ university conducted	Prize Won/remarks
Khurshid Alam Ishan V. Bhalchkra	Tapas (Quo Vadis-09) NGO live case	IIFT -New Delhi	Selected in top-5 team
Khurshid Alam Ishan V. Bhalchkra	Shastra (Shanskriti-09) Operation case (IEL)	IPE, OU- Hyderabad	Selected in top-5 team
Khurshid Alam Kazi Wasim Zaman	Agargami (Shanskriti-09) HR Case	IPE, OU- Hyderabad	Selected in top-5 team
Khurshid Alam Kazi Wasim Zaman Ramya Sri B.	BIZZ'Art (Prospective-10) Marketing case (Aroma coffee)	IMNU (Nirma University)- Ahmedabad	Second Prize
Khurshid Alam Ramya Sri B.	Strategy-10 SCM case	NITIE- Mumbai	Runner up
Dewasish Ghoshal Amitabh Chaitanya Kazi Wasim Zaman	Samadhan-Marketing case study INTERFACE-10,	BITS Pilani,Rajasthan	Third prize
Dewasish Ghoshal Dhananjay kumar pathari Kazi wasim zaman	Jigyasa-Knowledge Management in H R INTERFACE-10,	BITS Pilani,Rajasthan	Paper presentation -- Runner up
Khurshid Alam Ishan V. Bhalchkra Rashmi Kumari	Analyst'10 (infotsav-10) Mc Donalds' supply chain case study	IIITM Gwalior	Selected for 2nd round

Team members	Name of Event	Name of the college/ university conducted	Prize Won/remarks
Saurabh Kumar Vibhanshu Kumar	TARANG'10 (Shanskriti-10)	IPE, OU- Hyderabad	Selected in top-5 team
Khurshid Alam Kazi Wasim Zaman Ramya Sri B.	marcoms-10 Marketing case (Organic cotton cloth)	TISS-Mumbai	2nd round- 3rd position
Kazi Wasim Zaman Ramya Sri B.	Paper writing Base Rate Regime	IIFT -New Delhi	Published in Infinitree
Khurshid Alam Kazi Wasim Zaman Ramya Sri B.	PraganA, Stratospear	NMIMS- Mumbai, Religare	Complete solution provided
kiran kumar bandari usha kiran	National conference on agricultural marketing	CRIDA,Hyderabad	Presented a paper on "Export of Dairy products in the era of trade liberalization"
Amit kumar Mukul singh	BIZZ'Art (Prospective-11)	IMNU (Nirma University)- Ahmedabad	Selected(in Top 15 teams)
Keshav kumar Vibhanshu Kumar	Drishtikone, UDAAN 2011	IRMA	Finalist
Vibhanshu Kumar	Abhivyakti	IABM, Bikaner	Finalist
Kriti Pareek Prakash Tiwari Om Prakash Gupta	National seminar on food security issues-Role and challenges of Agri-input sector	ANGRAU, Hyderabad	Paper presented

II. Post Graduate Diploma in Technology Management in Agriculture - (PGDTMA) (Distance mode)

- (I) **MoU with University of Hyderabad:** A MoU has been signed on Sept. 23, 2010 with the Institute of Distance Education and Virtual Learning, University of Hyderabad to offer the one-year PGDTMA programme in Open Distance Learning (ODL) mode. The diploma will be awarded jointly.

The programme is designed for competence building particularly among working professionals engaged in various sectors related to national agricultural development. The strengths of NAARM and UoH in agricultural research and education management are expected to provide complete and effective learning experience for students in agriculture technology-led business promotion and venture creation. The programme in ODL mode is also intended to support



and up-grade the competence of scientists and teachers in the National Agricultural Research System for better preparedness to integrate technology-driven research outputs in agricultural enterprises for achieving the national development goals.



- (ii) **Admission to PGDTMA:** The admission process for the first batch (2011) PGDTMA students has been completed. The applicants include a number of executives from the industry and Academia, besides students pursuing PG studies and others.

Post Graduate Diploma in Technology Management in Agriculture - PGDTMA (Distance mode)

Sl. No.	Academic Programme	Duration	No. of Students	Programme Directors
01	PGDTMA, 2011	2011-12	128	R. Kalpana Sastry; NAARM S. Jeelani and E. Haribabu, University of Hyderabad

- (iii) **Course structure and Curriculum:** Curriculum has been designed with the help of leading experts from the National Law Schools, research institutions in public and private sector, law firms, technology transfer consultancy agencies, KPOs and industry. Six courses and one course of project work, as detailed below, are being offered:

PGD-TMA 411- Intellectual Property Regime -Semester I - 4 credits
PGD-TMA 412 -IP Informatics -Semester I - 4 credits

PGD-TMA 413- Technology Management - Semester I - 4 credits
PGD-TMA 421- IP Prosecution and Litigation- Semester II - 4 credits
PGD-TMA 422- Rural Innovation-Semester II - 4 credits
PGD-TMA 423- Technology Entrepreneurship- Semester II-4 credits
PGD-TMA 433- Project Work- Semester I and II - 4 +4 credits

A minimum of 8 contact sessions every semester is mandatory. The distance-learning course materials for the 3 courses to be offered in the first semester of the programme have been developed.

III. Alumni News

PG Diploma in Intellectual Property and Technology Management in Agriculture (PGD-IPTMA)

Two students belonging to NAARM PGD-IPTMA batch of 2009-10, Ms Ruchica Goyal and Ms Purwa Rathi qualified as patent agent and trademark agents respectively in Patent Agent and Trade Mark Agent Examinations - 2010 held recently by Government of India.

IV. JET-ABM

MOU for Joint Entrance Test (JET-ABM) for admission in 2011-12: The three national institutions under the Ministry of Agriculture: National Academy of Agricultural Research Management (NAARM), Indian Council of Agricultural Research, Hyderabad; National Institute of Agricultural Extension Management (MANAGE), Hyderabad; and Choudhary Charan Singh National Institute of Agricultural Marketing (NIAM), Jaipur, had signed an MoU on Dec. 13, 2010 to conduct a national **Joint Entrance Test - Agri Business Management (JET - ABM) for admission** to their respective Post-Graduate programmes recognized by the AICTE. The examination was conducted jointly on March 27, 2011 at 21 centres. The agreement is initially for a period of 3 years. A Joint Admissions Committee (JAC) comprising members from all the 3 institutions supervised the admission test process. The JET-ABM would facilitate the students to appear for only one entrance exam instead of three, and also increase the importance of agribusiness management as a specialized discipline of management studies.

Consultancy

N. Sandhya Shenoy

- Evaluation of a women project for DST.
- Paper setter and examiner for the course on “Extension Communication and methods” (FEX 502), CIFE
Assignments undertaken:
- A study on Information and Communication technology using pattern of personnel working in Non governmental 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.

S.K. Soam

- Capacity building project 'Foundation training for young scientists of Central Silk Board. The project worth Rs 4.42 Lakhs for training 25 scientists. Consultants - Drs S.K. Soam and Kalpana Sastry; the training program was conducted during Jan. 4-18, 2011.
- NAIP competitive project on National Training titled 'Intellectual Property Rights and Technology Licensing in Agriculture'. The project worth was Rs 4.90 Lakhs for training 22 scientists. Consultants Drs S.K. Soam and R. Kalpana Sastry; the training programme was conducted during March 2-11, 2011.

Consultancy to MAHYCO (Dr G.P. Reddy , Dr A. Dhandapani and Dr P.C. Meena)

The study on “An Analysis of Socio-Economic Impacts of Insect Resistant and Herbicide Tolerant Cotton” was undertaken to analyze the Impact of Genetically Modified Cotton containing insect resistance and herbicide tolerant traits on cotton farmers in various zones of India with the following objectives:

- To understand the challenges in Indian cotton farming and evaluate need of the genetically modified insect-resistant, herbicide-tolerant technology under Indian cotton farming practice.
- To access the trend in weed management practices and cost of weeding operations in different cotton growing zones.
- To examine farm level effects of genetically modified insect-resistant, herbicide-tolerant cotton on crop yield, cost and net returns' assess farm level effects of adoption of genetically modified insect-resistant, herbicide-tolerant cotton on availability of labor requirement and cost of labor.
- To access the socio economic benefits to farmers by adopting the insect-resistant and herbicide-tolerant technology.
- To scale-up economic impacts at the national level with adoption of genetically modified insect-resistant, herbicide-tolerant technology and value distribution among existing cotton farmers with different land holdings.

The project was carried out successfully and report was submitted to MAHYCO.

Achievements / Awards / Recognitions

Success stories

(i) Agribusiness Knowledge Centre (AKC)

The Agribusiness Knowledge Centre (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 is formed on April 7, 2010. The following are some of the activities successfully achieved by AKC:

- 1. National Workshop on Agribusiness Knowledge Exchange:** A three-day national workshop on Agribusiness Knowledge Exchange was organized from April 22 to 24, 2010 which was attended by about 40 leading companies like ITC, SGS, Coromandel, etc.
- 2. Specialized Course on Seed Management:** AKC has conducted a three-day specialized course on Seed Management with a specialized course material prepared and distributed. The course was extremely successful and appreciated by all.
- 3. AKC has allotted cabin space to five Companies at NAARM. The companies are:**
 - Futureage Infrastructure
 - Mozo Bamboo Plantations
 - Sahaja Aaharam
 - Shree Jagadamba Samiti
 - Yes Bank

These companies are to interact with the NAARM faculty and PGDMA students for projects. Sahaja Aharam has already initiated a project.

- 4. Agribusiness Knowledge Exchange Portal:** GISPL has successfully developed a Knowledge Exchange Portal on Wapr platform and hosted the same at www.akcnaarm.com

(ii) NAIP Help desk: The help desk established at NAARM under the L&CB project and the concurrent training programmes on research proposal development have enhanced the capacity of NARS for public-private consortia research. The majority of research proposals of NAIP were developed with on line support from the help desk and training programmes. During the initial stages of the project, the helpdesk received nearly 1500 e-mails per month from the private and public institutions involved in developing concept notes and final project proposals under components 2, 3 and 4 of NAIP. At present the helpdesk receives about 5 emails per day at helpdesk@naarm.ernet.in. The sub-projects are now in execution phase and most present queries pertain to monitoring and evaluation and submission of periodic reports.

(iii) E-Learning in NARS: The L&CB project enabled acceleration of implementing e-learning initiatives by NAIP in SAUs and DUs of ICAR by developing a roadmap, open source software (MOODLE) adoption for content and learning management, and capacity building strategies for institutionalizing e-learning. The Academy has trained over 500 personnel so far in the five disciplines- veterinary, dairy, fisheries, horticulture and home science, and SAUs/DUs. 10 e-learning websites are functional now in various AUs across the country. Some of the e-learning websites which are fully functional after receiving the training at the Academy include the E-learning websites developed by TANUVAS, Chennai

<http://www.elearnvet.net/moodle/login/index.php>, Sher-e-Kashmir university
<http://starelearning.org>, Veterinary college of Assam Agricultural University
<http://www.vetbifguwahati.ernet.in/>.

(iv) **PG education at NAARM:** E-learning has been introduced through the Academy's website URL <http://elearning.naarm.ernet.in> to the Postgraduate programmes being offered at the Academy viz., PG Diploma in Information Technology Management, PG diploma in Intellectual property Management and PG Diploma in Management (Agriculture). The students were provided access to an e-learning site developed for their courses and a continuous assessment of use of resources was made during their course of study. Students take part in accessing the content in various formats which included videos of the classes, assignment submissions, online evaluations, glossary development, discussion fora etc., An impact study conducted on one batch of students revealed that most of the criteria for e-learning like ease of access to content, quizzes, assignments etc., were rated over 4.5 on a scale of 1-5.

(v) **Intellectual property management and market orientation of research:** The research outputs from the L&CB project have led to more relevant and effective design of training programmes for institutionalization of intellectual property management and technology commercialization in ITMUs in institutions of ICAR, and BPD units set up under NAIP. The faculty of NAARM have participated extensively in the initial phase of sensitization of NARS to IPRs and market orientation and research, and subsequently in capacity building for institutionalization of processes in ITMUs and BPD units.

(vi) **Implementation of LAN based online evaluation for FOCARS:** Online evaluation saves resources like time, expenditure, infrastructure and consumables. An online system was

established in Local Area Network (LAN) environment for online evaluation of the FOCARS probationers whose evaluation was being done manually earlier. It was found to save 15 man days and Rs 44,750 per batch of participants.

The individual achievements are as follows:

P.K. Joshi, Director

- Member, Core group on “Right to Food”, National Human Rights Commission, Government, New Delhi.
- Member, Editorial Advisory Board, Journal of Agribusiness in Developing and Emerging Economies (JADEE) published by Emerald Group of Publishing Ltd.
- Dr M. S. Randhawa Memorial Award

Dr P.K. Joshi, Director, NAARM received Dr M.S. Randhawa Memorial Award for the biennium 2009-10 during X Agricultural Science Congress at NBFGR, Lucknow on Feb.10, 2011. His Excellency Shri. B.L. Joshi, Governor of Uttar Pradesh gave away the award to Dr Joshi in the presence of Shri. Harish Rawat, Minister of State for Agriculture and Agro-processing Industries, and Dr R.B. Singh, President, NAAS.

- Dr P.K. Joshi, Director was awarded Certificate of Honour for the Best Paper published in Agricultural Economics Research Review by Agricultural Economics Research Association (AERA, India) for the research paper titled “An Assessment of Economic Losses due to Avian Flu in Manipur state”. Dr R.T. Doshi Foundation has conferred this award to Dr Joshi and his team.

N.H. Rao, Joint Director

- *Reviewer for International Journal of Image and Data Fusion* (Taylor and Francis)
- *Reviewer for international Journal of Water Resources Management* (Springer)

- 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, Committee on ICAR Rules and Guidelines for Professional Service Functions.
- Member, Expert Committee, National fund of ICAR (for Evaluation of Project Proposals)

R. Kalpana Sastry, Head, ARSMP Division

- Awarded Certificate of Appreciation for effective implementation and delivering desired output during National Meet on Technological Innovation in Agriculture by National Director, NAIP. May21-22, 2010, NASC Complex, New Delhi
- Referee, Food Policy (*Elsevier publication*)
- 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 August, 2010.
- Nominated Member of ITMC of seven ICAR institutes
- **IPR expert member of Zonal Technology Management Committee (ZTMC) -South Zone.**
- Selected as part of nine-member expert team for undertaking the Philippines Technology Transfer Project-120 by Public Interest Intellectual Property Advisors (PIIPA) on a *pro bono* basis

- Governing Council Member of Society for Technology Management (STEM)
- External Examiner, Ph. D student, Faculty of Agriculture, MPKV, Rahuri

D. Rama Rao, Principal Scientist

- Expert for staff selection at NRCS, Hyderabad and NPPTI, Hyderabad
- Member Institute Management Committee for Directorate of Sorghum Research, Hyderabad
- Member Institute Management Committee for Directorate of Oilseeds Research, Hyderabad
- Member, Rotary Club of Hyderabad from Oct. 30, 2010
- Member, Core group for State Science and Technology Oriented Demonstration Projects, DST, New Delhi
- Member, Working Group for Agricultural Sector - Human Resource Development/Capacity Building in educational institutions, BIS, New Delhi

G.P. Reddy, Principal Scientist

- Elected Vice President of Agricultural Economics Research Association during 18th Annual Conference held at the Academy from Nov. 18 to 20, 2010.
- Reviewer for Indian Journal of Agricultural Economics, Indian Journal of Agricultural Marketing and Agricultural Economics Research Review
- Expert for staff selection at Acharya N.G. Ranga Agricultural University
- Reviewer for Indian Journal of Soil and Water Conservation
- Member of Executive Committee in Indian Society of Agricultural Marketing

- External Examiner, Ph.D, Faculty of Agricultural Economics at UAS, Bengaluru, Dharwad; OUAT, Bhubaneswar; MPKV, Rahuri; Mysore University, Mysore; and Kempu University, Shimoga

S.K. Soam, Principal Scientist

- Member, technical committee constituted by Andhra Pradesh Horticultural University (APHU) for GI registration of 'Banaganapalle mango'
- IPR expert member of Institute Technology Management Committee (ITMC) of NRC on Oil Palm, Pedavegi.
- Member of Editorial Board of 'International Journal of Essential Sciences', published by NAS College, Meerut University, Meerut, UP.
- Research advisor to the 'Feni Project' of University of Warwick, Coventry, UK. The other six globally selected advisors were from reputed organizations like World Intellectual Property Organization, Oxford University, International Center for Trade and Sustainable Development at Switzerland and CONABIO at Mexico. The project facilitates the registration of 'Feni' as Geographical Indication (GI), this is the first alcoholic product to get GI registration in India. The project has also come up with highly useful data related to trade development of the product. A 62 page bulletin titled 'Geographical Indications and Localization: A Case Study of Feni' has been published and released in 2010 by The University of Warwick, ISBN978-0-902683-93-8.

K.H. Rao, Principal Scientist

- Referee in Journal of Food Science and Technology
- Referee in Indian Journal of Dairy and Biosciences

K. Srinivas, Principal Scientist

- Referee in Journal of Food Legumes
- Member of editorial board for Journal of Agricultural Development and Policy

R. Venkattakumar, Principal Scientist

- **Best Paper Award:** Received ISOR Best Paper Award for 2009 for the following paper: R. Venkattakumar, S.V. Ramana Rao, M. Padmaiah and D.M. Hegde 2009. Productivity potentials and profitability of non-monetary, low-cost and cost-effective oilseed production technologies. Journal of Oilseeds Research. 26 (2): 140-147.
- Member, Convener for Photo and Videography Committee and Member for Editorial Committee during National Symposium on "Research and Development in Castor: Present Status and Future Strategies, Oct. 22-23, 2010, organized by Indian Society of Oilseeds Research (ISOR)
- Associate Editor, Journal of Oilseeds Research. Indian Society of Oilseeds Research (ISOR), Hyderabad.

Ranjit Kumar, Senior Scientist

- Reviewer for 'Environment, Development and Sustainability' - a Journal by Springer

Best paper awards:

- **Best Research Paper (1st Prize)** of the year 2009-10 by the Agricultural Economics Research Association (India), New Delhi. "Srivastava, S.K., Ranjit Kumar, and Singh, R.P. (2009). **Extent of Groundwater Extraction and Irrigation Efficiency on Farms under Different Water-market Regimes in Central Uttar Pradesh.** Agricultural Economics Research Review, 22(1): 87-97".
- **Best Conference Paper (2nd Prize)** for the year 2010-11 by the Agricultural Economics Research Association (India), New Delhi during its 18th Annual Conference held at NAARM, Hyderabad for the paper on "Sinha, R.K., and Ranjit Kumar. (2010). **Innovative Technologies, Institutions and Policies for Successful Value Chains for Tur Farmers: A Case Study of NCDEX Spot.** Agricultural Economics Research Review, 21: 427-436".

Jyothi Badri, Scientist

- Reviewer, International Journal of Plant Physiology and Biochemistry (Academic Science Journal)
- 25 Sesame nucleotide sequences to National Centre for Biotechnology Information (NCBI) database which were released in Genbank in November, 2010.

Ananta Sarkar, Scientist

- Editorial board member of "International Journal of Bio-Resource and Stress Management", Kolkata, India.

Rajashri Tandon Award

The Academy received Rajashri Tandon Rajbhasha Puraskar for excellent implementation of Official Language (Hindi) implementation among the ICAR organizations in region "c" for the year 2009. Dr P.K.



Joshi, Director, NAARM received the Award from Hon'ble Minister for Agriculture, Mr Sharad Pawar at New Delhi on July 16, 2010. Dr S.K. Soam, Principal Scientist and OI/c Hindi, and Dr J. Renuka, Assistant Director, Hindi joined the Director in receiving the award.

Best Winning Team Award

The sports contingent of NAARM won the Best Winning Team Award in the Inter-Zonal Sports Tournament of All India Indian Council of Agricultural Research (ICAR) organized by Central Arid Zone Research Institute at Jodhpur, Rajasthan from Nov. 9 to 13, 2010. Around 450 players from more than 30

ICAR Institutes participated in this mega event. Mrs K.K. Rukmini Ammal, Personal Assistant, won gold medals in shuttle badminton, shotput and discus throws; Mrs G. Aneesa, Sr. Technical Officer, won gold medal in javelin and silver medal in shotput; Mrs N. Vijayalakshmi, Junior Accounts Officer, won gold medal in chess; Mr Samson, UDC, won gold medal in shotput and silver medal in discus. Dr A. Debnath, Manager, received the Best Winning Team Award during the closing ceremony of the tournament.

Best Athlete Award (Men)



Mr M.K. Samson of NAARM sports contingent was adjudged as Best Athlete (Men) in the ICAR Zonal Sports Meet-2011 (South Zone) conducted by Indian Institute of Horticultural Research, Bengaluru from Feb. 7 to 11, 2011. He won first prize in shotput, discus and javelin. Mr Sham Bahadur got second prize in carrom and Dr A. Debnath got third place in javelin. Mrs. Rukmini Ammal got first prize in shotput, discus, and third prize in javelin. She also won first prize in shuttle badminton (singles), and stood runner-up in table tennis (singles). NAARM contingent consisting of 38 persons including one women player participated in the track and field events along with volley ball (shooting and smashing), shuttle badminton, table tennis, kabaddi, basketball and carrom events. In the overall medals tally, NAARM got third place after IHR and CPCRI.

Congratulations to all the prize winners!

NAARM bags Rose Show Awards

NAARM won eight prizes (four first prizes and four second prizes) in different categories of flower display by institutions in the XXXV annual rose show conducted by Hyderabad Rose Society on Dec. 11 and 12, 2010 at Public Gardens, Hyderabad. NAARM also won a total of 13 prizes in the XXV Silver Jubilee rose show conducted by Secunderabad Horticultural Society on Dec. 18 and 19, 2010 at Cantonment Gardens, Secunderabad. The trophies received are as follows: Queen of the Show; Best fragrant Rose of the show; Rosarian Institution of the Year.

Other Events

ICAR - SRF Examination

NAARM successfully conducted the all-India competitive ICAR Senior Research Fellow (SRF) examination (2010) on Dec. 12, 2010 for selecting the students for fellowship to pursue their Ph. D studies. The examination was conducted at 11 centres across the country in 13 agriculture and allied disciplines for 202 fellowships. Dr P. Manikandan was the controller of examination.

ARS Examination

NAARM successfully conducted Agricultural Scientist Research Board's Agricultural Research Service (ARS) preliminary and main exams at Hyderabad centre on Sept. 19, 2010 and Nov. 28, 2010 respectively. Out of 176 candidates registered, 148 appeared for the main exam. Dr Jagannadham Challa was the Centre Supervisor.

Books Released

Book on “**Developing Winning Research Proposals**” (Jagannadham Challa, D. Rama Rao, S.M. Virmani)
The third version of the book titled “Developing Winning Research Proposals” was released by Dr P.K. Joshi, Director, NAARM on Oct. 28, 2010. The book was published by NAARM, and printed at NAARM offset press.

Book on “**Conservation Agriculture: Innovations for Improving Efficiency, Equity and Environment**” (Eds: P.K. Joshi, J. Challa and S.M. Virmani)

National Academy of Agricultural Sciences (NAAS), New Delhi. The book was jointly released on Nov. 29,



2010 in New Delhi by Dr Mangala Rai, former Director-General, ICAR and President, NAAS, Dr S Ayyappan, Director-General, ICAR, and Dr H K Jain, Vice President, NAAS.

Foundation Day Celebrations

NAARM celebrated its 35th Foundation Day on Sept. 1, 2010. Dr N. Vishwanadham, Executive Director, Centre for Global Logistics and manufacturing strategies, Indian School of Business was the Chief Guest on the occasion. Dr S.M. Ilyas, Director, Distance Education, National Institute of Rural Development; and Dr S.M. Virmani, former



Programme Director, ICRISAT were Guests-of-Honour on the occasion. Dr P.K. Joshi, Director, welcomed the gathering and introduced the Chief Guest and Guests-of-Honour. NAARM new website (www.naarm.ernet.in) was launched and a publication - “NAARM Annual Report 2010” was also released on this occasion. The Best Performance Awards of the Academy were given to Mr G. Raja Reddy (Administration); Mr N. Ashok (Technical); Mr G.V. Bickshapati (Supporting Staff); Mr B. Ashok and Mr R. Narasimha (Temporary Status Workers) on the occasion. Dr N.H. Rao, Jt. Director proposed vote of thanks.

Hindi Fortnight Celebrations

The Academy Celebrated Hindi Fortnight Celebrations from Sept. 1 to 14, 2010. On this occasion, various Hindi competitions like elocution, noting and drafting, general knowledge, construction of words, just a minute, explanation of quotations, etc., were organized for the faculty, officers and staff of the Academy. The Scientist-trainees also have exhibited their talent in the



competitions held for them exclusively like antakshari, skit, writing scientific articles, etc. On the concluding ceremony, Sh. Radheshyam Shukla, Editor, Swatantra Vaartha, who was the Chief Guest, enlightened the audience on the importance of Hindi, and stressed on the key role played by the languages for the transfer of technology. Dr S.K. Soam, Officer Incharge, Hindi presented the overall activities of the Hindi Cell where as Dr J. Renuka, Assistant Director, Hindi, proposed vote of thanks.

Health Checkup Camp

A free health check up camp was organized at NAARM Health Centre on Dec. 9, 2010. A cardiologist, gynaecologist and orthopedic surgeon along with technicians from Mediciti hospital, Hyderabad were invited for check ups and consultations. Medical investigations like blood sugar, Lipid profile, blood pressure and ECG, etc., were taken up at the camp. Around 130 staff members, officers, faculty, temporary status workers, contractual staff and retired ICAR pensioners got benefited of this free health camp.

Dental Check-up Camp

A free Dental screening camp was organized at NAARM on Dec. 28, 2010 for the benefit of our employees and dependents, and also retired ICAR pensioners with the help of Rukku's save n smile Dental hospital. There was a presentation on prevention of Dental diseases by Dr Sunil Reddy followed by Dental screening camp at our Health Centre. Around 79 persons attended the screening camp.

New Year Celebration

NAARM family members celebrated New Year eve with much enthusiasm, fervour and happiness, and welcomed the New Year 2011. On the occasion, Dr P.K. Joshi, Director, released New Year Calendar and NAARM Newsletter (Oct. - Dec. 2010) on Jan.1, 2011.



Republic Day celebration

Dr P.K. Joshi, Director, hoisted the National Flag on the eve of Republic Day celebration on Jan. 26, 2011 at the Director's Office and addressed the gathering. All the faculty members, officers, staff, trainees of various programmes, and temporary status workers attended the celebration.



Meetings

National Consultation on Role of NAARM in Changing R&D Perspectives

A national consultation on Role of NAARM in Changing R&D Perspectives was organized on Jan. 6



and 7, 2011. The purpose was to reorient the NAARM programmes in view of changing agriculture scenario. The meeting was attended by the senior executives of ICAR including Dr S. Ayyappan, Secretary, DARE and DG, ICAR; Dr M.V. Rao, Member Legislative Council, Andhra Pradesh, Dr C.D. Mayee, Chairman and Dr N.K. Tyagi, Member ASRB; Dr Bangali Baboo, National Director, NAIP; the DDGs of Education, Crop Sciences, Animal Sciences, Horticulture, Engineering and Extension divisions of ICAR, and ADGs of education division, IPR and fisheries, and directors selected ICAR institutes. The existing programmes of NAARM were reoriented, and new capacity building programmes were developed in the changing R&D perspectives.

Research Advisory Committee Meeting

Eleventh Research Advisory Committee (RAC) meeting was held on April 28, 2010 under the chairmanship of Dr Pritam Singh to review and discuss the activities of the Academy including teaching and training programmes, research, consultancy and policy support. The other members of the committee attended were Dr V. Balaji, Dr R.P.



Singh and Dr Giri Rao, Mr Mohan Datta Deshmukh, Mr G. Narasimha Raju Yadav and Dr P.K. Joshi, Director, NAARM. The members appreciated the on-going programmes of the Academy.

IMC Meetings

The 45th and 46th Institute Management Committee meetings were held under the chairmanship of Director, NAARM on July 7, 2010 and March 4, 2011 respectively.

IMC members are:

- Dr P.K. Joshi, Director, NAARM
- Dr D.M. Hegde, Project Director, Directorate of Oilseeds Research, Hyderabad
- Mr Satyanarayana, Commissioner and DG, AMR Andhra Pradesh Academy of Rural Development, Hyderabad

- Vice Chancellor, University of Agricultural Sciences, Dharwad, Karnataka
- Vice Chancellor, Acharya NG Ranga Agricultural University, Hyderabad
- Dr P.K. Agarwal, National Professor, IARI, New Delhi
- Sh. Mohan Datta Deshmukh, Progressive farmer
- Sh. G. Narasimharaju Yadav, Progressive farmer
- Director, National Centre for Agricultural Economics and Policy Research (NCAP), New Delhi
- Mr S.K.C. Bose, Finance and Accounts Officer, CRIDA, Hyderabad
- Dr N.H. Rao, Joint Director, NAARM
- Drs P. Manikandan, Dr R. Kalpana Sastry and M.N. Reddy, Heads of Divisions; NAARM
- Mr Sanjay Kant, Joint Director (Admn) and Registrar, NAARM
- Mr S. Philipose, SFACo, NAARM

Visitors

Dr K. Kasturirangan Visits NAARM

Dr K. Kasturirangan, Member, Planning Commission visited the Academy on May 13, 2010 along with the senior officials from the Planning Commission and Ministry of Agriculture to review the state of agriculture, research and development in Andhra Pradesh. He interacted with Secretary, Agriculture, Government of Andhra Pradesh; Vice Chancellors of Acharya N.G. Ranga Agricultural University, Sri Venkateswara Veterinary University, Andhra Pradesh Horticultural University; Directors of ICAR institutes located in Andhra Pradesh including In-charges of Regional Stations. The visit was aimed at reviewing the state of pulse production programme and develops strategy for increasing productivity and production of pulse by the end of 11th plan.



Publications

Books

Challa, J., Ramarao, D., and Virmani, S.M. (Ed). (2010). *Developing Winning Research Proposals in Agricultural Research - 3rd Revised Edition*, NAARM, Hyderabad. 605pp

Joshi, P.K., Challa, J., and Virmani, S.M. (Ed). (2010). *Conservation Agriculture: Innovations for Improving Efficiency, Equity and Environment*. NAAS, New Delhi.

Soam S.K. and Renuka, J. (2010). *Krishi Prabandhan Ke Naye Ayam* (in Hindi), Ank-5, Sept. 2010, NAARM, Hyderabad, 56pp.

Soam, S.K., and Kalpana Sastry, R. (2011). *Status and Strategies for GIs in India*. NAARM, Hyderabad, India (in Press)

Soam, S.K., Hanumanth Rao, B., and Henson-Apollonio Victoria. (Eds) (2009). *A Snapshot Guide to Intellectual Property Systems: A Compendium of Information from Developing Countries of Asia, Africa and Latin America*. National Academy of Agricultural Research Management, Hyderabad, India and CGIAR CAS-IP, Rome, 290 pp.

Sontakki, B.S., Samanta, R.K., and Joshi, P.K. (Eds) (2011). *Redesigning Agricultural Extension in India, Challenges and Opportunities*, National Academy of Agricultural Research Management, Hyderabad, India (in Press)

Book Chapters

Kalpana Sastry, R., Rashmi, H.B., and Rao, N.H. (2011). *Intellectual Property Landscape for Application of Agri-Nanotechnologies in India*. In: *Knowledge Management*, National Institute of Advanced Studies, IISc Campus, Bengaluru.

Kochu Babu, M., Maryrani, K.L., and Ananta Sarkar (2010). *Global and National Scenario of Oil Palm*. In: *Compendium of Oil Palm Production Technology*, Third Edition, Directorate of Oil Palm Research, Pedavegi: 5-19pp.

Kochu Babu, M., Prabhakara Rao, K.J., and Ananta Sarkar (2010). *Economics of Oil Palm*. In: *Compendium of Oil Palm Production Technology*, Third Edition, Directorate of Oil Palm Research, Pedavegi: 203-208pp.

Raju, P.N., and Rao, K.H. (2010). *Application of Biosensors for the Quality Assurance of Dairy Products*. In: *Biosensors in Food Processing, Safety and Quality Control*. Edited by Mehmet Mutlu, CRC press, Taylor and Francis Group, New York. 228-256pp.

Rao, K.H. (2009). *Human (Interpersonal) Relationship - A Vital Ingredient at the Work Place for Enhancing Organization's Efficiency and Effectiveness*. In: *Change Management for Academic and Research Excellence in Agriculture*. Eds: J. Devi Prasad, T. Ramesh Babu and B. Bucha Reddy. First Edition. Acharya N.G. Ranga Agricultural University Press, Hyderabad. 47-52pp.

Rao, K.H. (2009). *Human Resources Management in Indian National Agricultural Research Systems - An overview*. In: *Change Management for Academic and Research Excellence in Agriculture*. Eds: J. Devi Prasad, T. Ramesh Babu and B. Bucha Reddy. First Edition. Acharya N.G. Ranga Agricultural University Press, Hyderabad. 35-46pp.

Rao, K.H., and Unnava, H.R. (2009). *Organizational Commitment of Employees at Workplace: Concepts and Strategies*. In: *New Orientations in Workplace Environment*, Eds: N. Nagamani Nagaraj and Anitha Arunsimha. First Edition. The ICFAI University Press, Hyderabad. 118-131pp.

Soam, S.K., and Jagannadham Challa. (2010). *The Logical Framework in Research Planning and Evaluation*. In: *Developing Winning Research Proposals in Agricultural Research* (Eds: J. Challa, D. Rama Rao and S.M. Virmani) 3rd revised edition. National Academy of Agricultural Research Management, Hyderabad, India, pp 189-204. ISBN-978-81-909983-1-4.

Soam, S.K. and Hussain, M. (2011). Lesser-Known Horticultural Products as Geographical Indications in India. Accepted for publication in the book by Centre for Science and Technology of Non-Aligned and Other Developing Countries (NAM S&T Centre), New Delhi

Soam, S.K., Hussain, M., and Kalpana Sastry, R. (2010). The Socio-economic Status of Producers of Geographical Indications of India. In: Souvenir "Marching towards food-nutrition secure India" of National Symposium on Genomics and Crop Improvement: Relevant and Reservations organized by Institute of Biotechnology, Acharya N.G. Ranga Agricultural University, Hyderabad from Feb. 25 to 27, 2010).152-156pp.

Venkattakumar, R. (2010). An Overview of Socio-economic Impact of Cashew Production and Implicative Strategies. In: Ajit Kumar Roy (Ed.). Evaluation of impact assessment of technologies and developmental activities in agriculture, fisheries and allied fields. New India Publishing Agency. New Delhi. 207-222pp.

Research Papers in Journals

Ahire, L.M., Sontakki, B.S and Rao, K.H. 2011. Perception of Distance Learners of School of Agricultural Sciences on Post Graduate research Programs, Journal of Communication Studies. Vol.29(1), April 2011.

Anupama Jeevandas, Singh, R.P., and Ranjit Kumar. 2010. Dwindling water resources and agricultural growth sustainability in Punjab: Emerging issues. Journal of Agricultural Development and Policy, 20(2): 39-50.

Babu, D. and Verma, N.K. 2010. Value Chains of Milk and Milk Products in organised Sector of Tamil Nadu - A Comparative Analysis. Agricultural Economics Research Review. Vol. 23 (Conference Number) 2010. pp. 479-486.

Basappa, H., Padmaiah, M., Chander Rao, S., Venkattakumar, R., and Santosh Kumar. 2010. Effectiveness of FFS on knowledge gain and retention by tribal farmers about the castor IPM practices. Journal of Oilseeds Research. 27 (Special Issue): 340-342.

Ganesh Kumar, B., Datta, K. K., and Joshi, P.K. 2010. Growth of fisheries and aquaculture sector in India: needed policy directions for future. World Aquaculture: 41 (3), pp 45-51. (Journal published by World Aquaculture Society, Louisiana State University, USA).

Gutam, S., Aneeja, G., Mishra, A. K., Pandey, P. S. and Chandrasekharan, H. 2010 Open Access: Making science research accessible. Economic and Political Weekly, Nov. 20, 2010. Vol. XLV No. 47. 19-22 pp.

Gutam, S., Mishra, A.K., Pandey, P.S., Chandrasekharan, H., and Aneeja, G. 2010. Need of open access repositories for NARS in India. Current Science, Vol. 98, No. 12 1564-1566pp

Kalpana Sastry, R., Rashmi, H.B., and Rao, N.H. 2010. Nanotechnology patents as R&D indicators for disease management strategies in agriculture, Journal of Intellectual Property Rights, Vol. 15, 197-205.

Kalpana Sastry, R., Rashmi, H. B., and Rao, N. H. 2010. Nanotechnology-based Precision Farming Technologies: An Assessment based on R&D Indicators, Society for Technology Management, STEM Newsletter, July 2010 | Vol. 5 No. 2 ISSN 0974-3863

Kalpana Sastry, R., Rashmi, H. B., and Rao, N. H. 2010. Nanotechnology for enhancing food security in India. Food Policy at <http://dx.doi.org/10.1016/Journal of Food Policy>. 2010. 10.012

Kalpana Sastry, R., Rashmi, H. B. and Jyothi Badri. 2011. Research and Development Perspectives of Transgenic Cotton: Evidence from Patent Landscape Studies. Accepted Paper in 'Special Issue on Agriculture. Journal of Intellectual Property Rights'. March 2011.

Kandeepan, G., Rao, K.H., Rao, V.K. and Pal, U.K 2009. Application of Sensors for Quality Evaluation of Meat and Meat Products. Beverage and Food World 36(3): 26-28

Karunasree, E. and Sandhya Shenoy, N. 2009. Information and Communication Technology (ICT) need assessment of agricultural professionals working in Krishi Vigyan Kendras in Andhra Pradesh. Journal of Communication, Vol.28, pp 24-35.

- Kumar, Anjani, Shinoj, P., and Joshi, P. K. 2010. Global economic crisis and Indian agriculture: impacts and perspectives. *Indian Journal of Agricultural Economics* 65 (3): 508-519.
- Manikandan, P. 2010. Change management: where do leaders make difference? *Advances in Management*, 3(9), 5-7.
- Manikandan, P. 2010. Change-oriented leadership in organizations. *HRM Review*, 10 (11), 10-18.
- Manikandan, P. 2011. Organizational change audit - Are organizations well-prepared for effecting changes? *HRM Review*, 11 (3), 40-45.
- Meena, P.C., and Reddy, G.P. 2010. Supply chains and marketing of livestock in Andhra Pradesh. *Journal of Agricultural Development and Policy*. Vol. (20)2, pp 85-98
- Meena, G.L., Meena, P.C., and Prem Chand. 2010. Carrier opportunity in Agribusiness Management, *Employment News*, Vol. XXXX, No. 25, 18-24 Sept., 2010.
- Narendra Kumar, Srinivas, K., Mina, B.L., Mukesh Kumar, and Srivastva, A.K. 2010. System productivity, profitability and competition indices of horsegram intercropping under rainfed condition. *Journal of Food Legumes* 23 (3&4): 196-200.
- Narendra Kumar, Ved Prakash, Srinivas, K., Mina, B. L., Gopinath, K. A., and Srivastava, A. K. 2010. Effect of sowing method, growth retardant and intercropping, on horsegram (*Macrotyloma uniflorum*) productivity. *Journal of Agricultural Sciences*. Vol 80, no. 4, pp 335-337.
- Padmaiah, M., Venkattakumar, R., Sarada, C., Kavani, R.H., Vagasia, P.M., Vekaria, K.D., and Kunadia, B.A. 2009. Castor FLDS in Junagadh district of Gujarat-An impact analysis. *Journal of Extension Education*. 21 (4): 4323-4328.
- Padmaiah, M., Venkattakumar, R., Sarada, C., Venkatachalam, S.R., Thirukumaran, K., and Palanisamy, V. 2010. Impact of castor FLDS in Tamil Nadu. *Journal of Oilseeds Research*. 27 (Special Issue): 310-311.
- Padmaiah, M., Venkattakumar, R., and Ramana Rao, S.V. 2010. Performance of castor (*Ricinus communis*) hybrids under irrigated conditions during winter season in Andhra Pradesh. *Journal of Oilseeds Research*. 27 (2): 151-153.
- Pandit, M.C., Singh, R.P., and Ranjit Kumar. 2010. Adoption of Zero Tillage Technology in Wheat Cultivation in Trans-Gangetic Plain of India: An Economic Analysis. *Indian Journal of Agricultural Sciences*, 80 (12): 1092-4.
- Pandit, M.C., Singh, R.P. and Ranjit Kumar. 2010. Economic analysis of adoption of zero tillage technology in wheat cultivation in trans-gangetic plains of India. *Indian Journal of Agricultural Sciences* 80 (12): 1092-4, December, 2010.
- Pramanik C., Dey S.K. and Ananta Sarkar. 2010. Effect of Urbanization on Agriculture: A Special Scenario in Andhra Pradesh, India. *International Journal of Applied Science and Computations*, 17(2): 121-128.
- Rajesh Kumar Sinha and Ranjit Kumar. 2010. Innovative technologies, institutions and policies for successful value chains for Tur farmers: A case study of NCDEX spot. *Agricultural Economics Research Review*. Vol. 23, pp 427-436.
- Rao, N. H., Reddy, M. N., and Kumar, K. V. 2010. Craving for spatial data, *Geospatial today*, February pp: 36-39
- Rao, K.H and Reddy, G.P. 2009. Quality Management in the Production of Livestock Products for Global Trade. *Beverage and Food World* 36(2): 49-50.
- Rao, V.K.J., Meena, P.C., and Babu, D. 2010. Agribusiness Extension, NAARM-IFPRI workshop on "Redesigning Agricultural Extension in India: Challenges and Opportunities" at NAARM, Hyderabad on August 20-21, 2010.
- Reddy, G.P., Murthy, M.R.K., and Meena, P.C. 2010. Value chains and retailing of fresh vegetables and fruits in Andhra Pradesh. *Indian Agricultural Economics Research Review*. Vol. 23 (Conference Number) pp 455-460.

Reddy, M.N., Rao, N.H., and Kumar, K.V. 2010. Framework for characterization of vulnerability of rural livelihood systems using data mining. Proceedings 14th Pacific-Asia Conference on Knowledge Discovery and Data Mining in Workshop on Knowledge Discovery and Rural Systems, IIIT, Hyderabad, 21-24 June 2010, 89-104pp.

Soam, S.K. and Hussain, M. 2011. Commercialization of Indigenous Health Drinks as Geographical Indications. Journal of Intellectual Property Rights. (Accepted for publication in March 2011 issue)

Venkattakumar, R., Ramana Rao, S.V., Padmaiah, M., and Madhuri, P. 2010. Production constraints and information needs of oilseed growers in Andhra Pradesh. Agricultural Extension Review. 22 (2): 21-24.

Venkattakumar, R., Padmaiah, M. 2010. Adoption behaviour of oilseed growers in India. Indian Research Journal of Extension Education. 10(3): 75-83

Venkattakumar, R., Padmaiah, M., Sarada, C., Patel, R.M., and Solanki, S.S. 2010. Resource-use management of castor growers in Gujarat. Journal of Oilseeds Research. 27 (Special Issue): 312-314.

Electronic publications (peer reviewed)

Sandhya Shenoy, N. 2010. "Information and Communication Technologies for Agriculture (India)", Eco Learn IT, Reusable Learning Object System, University of Florida, Gainesville, USA. http://ecolearnit.ifas.ufl.edu/viewer.asp?rlo_id=361

Sandhya Shenoy, N. 2010. "Participatory Needs Assessment and Problem Prioritization Technique in Agriculture (India)", Eco Learn IT, Reusable Learning Object System, University of Florida, Gainesville, USA http://ecolearnit.ifas.ufl.edu/viewer.asp?rlo_id=375

Popular articles

Hegde, D.M., and Venkattakumar, R. 2010. Present status and future strategies for edible oil industry in India. Souvenir. Indian Vanaspati Producers' Association. 28-32pp.

Joshi, P.K. 2010. Improving supply chains for supporting, augmenting small farmers' income. Financial Express. Oct. 21, 2010.

Minturam Meena, and Soam, S.K. 2010. Podha kism aur krishak adhikar adhineeyam 2001 ek anokha evam sashakt vidhan (in Hindi), Krishi Prabhandhan Ke Naye Ayam, ank(5), September, 2010, 12-18pp, NAARM, Hyderabad.

Padmaiah, M., and Venkattakumar, R. 2010. Production technology of castor: A versatile industrial oilseed crop. Indian Farming. November, 2010. 19-23pp.

Soam, S.K., and Hussain, M. 2010. Pokali chaval evam Navara chawal ke vyavsayaek mahatwa ko badhane me bhogolic updarshan panjikan ka mahatva (in Hindi), Krishi Prabhandhan Ke Naye Ayam, ank(5), September, 2010, 34-38pp, NAARM, Hyderabad.

Technical / Research Reports

B.S. Sontakki, T. Balaguru, K.H. Rao, G.P. Reddy, Jagannadham Challa and R. Bhanumathi, 2009-10. Training Needs and Impact Assessment of Learning and Capacity Building (L&CB) under National Agricultural Innovation Project (NAIP), Working Paper - 9, National Academy of Agricultural Research Management, Hyderabad, pp16.

G.P. Reddy and M.R.K. Murthy, 2010. Managing Agri-Food Supply Chain: Food Retail Management, Working Paper - 1, National Academy of Agricultural Research Management, Hyderabad, pp16.

J. Challa; M.N. Reddy, N. Sandhya Shenoy; D. Rama Rao; G.R.K. Murthy and B. Kalyani 2009. Information and Communication Technologies for agricultural education and empowering rural women. Research Report, National Academy of Agricultural Research Management, Hyderabad

Kalpna Sastry R., S.K. Soam and M. Hussain 2009. Intellectual Property Management in Public - Private Partnerships - Patents, PVP & Copyrights. Research Report. National Academy of Agricultural Research Management, Hyderabad, 57 pp

K.H. Rao, 2010. Quality, Safety and Traceability in Perishable Food Supply Chain: Indian Perspectives and Experiences, 2009-10. Working Paper - 4, National Academy of Agricultural Research Management, Hyderabad, pp22.

Manpreet Hora, Vijay Paranjape and R. Kalpana Sastry, 2009-10. The Evolving Facets of PVP Laws in Major Jurisdictions of Asia-Pacific Region, *Working Paper - 7*, National Academy of Agricultural Research Management, Hyderabad, pp 26.

M.N. Reddy; N. Sandhya Shenoy; B.S. Kulkarni and K.V. Kumar 2009. Assessment of open Source Software (OSS) Tools for Management Information Systems (MIS) in Agricultural Research

M.N. Reddy, N.H. Rao and K.V. Kumar, 2010. Characterization of Vulnerability of Livelihoods using Data Mining Tools, *Working Paper - 3*, National Academy of Agricultural Research Management, Hyderabad, pp32.

Murthy, G.R.K., Ramarao, D., Sandhya Shenoy, N., Dhandapani, A., Mohan Singh, P., and Rajani, G. 2010. Project report on Agroweb 2008-10.

Murthy, G.R.K., E. Bhasker Rao, K.M. Reddy and D. Rama Rao, 2009-10. Online Evaluation - A Case Study, *Working Paper - 5*, National Academy of Agricultural Research Management, Hyderabad, pp6.

Murthy, G.R.K., Reddy, K.M., Rama Rao, D., Bhaskar Rao, E, Rajani. G. 2010. Effective E-teaching methodologies, Learning and Capacity Building Series -1, National Academy of Agricultural Research Management, Hyderabad, pp17

Murthy, G.R.K., K.H. Reddy, D. Rama Rao and E. Bhasker Rao 2009. E-Learning Management in MOODLE. Research Report, submitted to PMAC of NAIP, 41 pp

Murthy, G.R.K., K.M. Reddy, S.K. Nanda, D. Rama Rao and E. Bhasker Rao 2009. Identification and Integration of Decision Support Tools through Content Management Models for Effective Knowledge Transfer. Research Report, National Academy of Agricultural Research Management, Hyderabad, 33 pp.

N.H. Rao, M.N. Reddy, K.V. Kumar and M.R.K. Murthy, 2010. Vulnerability and Adaptive Capacity of Rural Livelihood Systems: A GIS based Framework, *Working Paper - 2*, National Academy of Agricultural Research Management, Hyderabad, pp38.

N. Sandhya Shenoy, V.K.J. Rao and B. Kalyani, 2009-10. Empowering Farm Women in Agriculture through ICTs, *Working Paper - 8*, National Academy of Agricultural Research Management, Hyderabad, pp 45.

N. Sandhya Shenoy, V.K.J. Rao and B. Kalyani 2009. Empowering Rural Women in Agriculture through ICTs. Research Report. National Academy of Agricultural Research Management, Hyderabad, pp 37.

Rama Rao, D. 2009. Assessment of Rural ICT Projects for Agriculture Marketing in India. Research Report, National Academy of Agricultural Research Management, Hyderabad, 62 pp

S.K. Nanda, BS Sontakki and Avtar Singh Rana, 2009-10, Innovation Quality Management in Agricultural Research and Development Organizations. *Working Paper - 6*, National Academy of Agricultural Research Management, Hyderabad, pp23.

Soam, S.K. 2010. Geographical Indications and Localisation: A Case Study of Feni. The University of Warwick, Coventry, UK, 62p; ISBN978-0-902683-93-8. Output from the GI project funded by Economic and Social Research Council, UK.

Soam, S.K., R. Kalpana Sastry and M. Hussain 2009. Intellectual Property Management in Public - Private Partnerships - Agro-biodiversity, Geographical Indication, and Traditional Knowledge. Research Report, National Academy of Agricultural Research Management, Hyderabad, 33 pp.

Srinivas, K., Reddy, G.P., and Ranjit Kumar 2010. Souvenir for 18th Annual Conference of AERA.

Venkattakumar, R., and Hegde, D.M. 2010. Guidelines for Organizing FLDs in Oilseeds. Directorate of Oilseeds Research, Hyderabad. P 20.

Venkattakumar, R., and Hegde, D.M. 2010. Frontline Demonstrations in Oilseeds: Annual Report 2009-10. Directorate of Oilseeds Research, Hyderabad. P 160.

Training manual / Bulletins / Resources developed

K.M. Reddy and V. K. J. Rao, 2010. Multimedia Content development: for faculty of fisheries - A training manual, p-373

K.M. Reddy and V. K. J. Rao, 2010. Multimedia Content development: for faculty of Home Science - A training manual, p-218

K.M. Reddy and V. K. J. Rao, 2010. Multimedia Content development: for faculty of Horticulture -- A training manual P-218

M.N. Reddy, N.H. Rao, and K.V. Kumar, and Research Associates 2009-10. Eight Training manuals for developing GIS applications in Agriculture. These manuals are available in public domain on the NAARM Virtual Learning Centre which can be accessed from the NAARM web site.

Rao, N.H., Kalpana Sastry, R, Rashmi HB and Anshul Shrivastava. 2011. Agri-Nanotechnology Literature and Patent Database. User Manual. 38 pages.

Rama Rao, D. 2010. Policy Brief on Rural ICT Projects in Service of Small Scale Agriculture in India, NAARM Publication, 2 pages.

Rao, V. K. J., and Reddy, K.M. 2010. IT based Decision Support System for Multimedia Development - A training manual, p-218

Sandhya Shenoy, N. and Rao, V.K.J. 2010. IT based Decision Support System for Digital Content Development, - A training manual. p-183

Learning Resources Developed:

(i) **Resource materials:** Developed resource materials for the following programmes (independently by all partner institutions). The resource material are continuously being updated.

S.No.	Name of the Programme
1.	Leadership development for transformation of NARS to NAIS
2.	Policy and Prioritization, Monitoring and Evaluation (PME) Support to Consortia-based Research in Agriculture
3.	Public-Private Partnerships for Innovation in Agriculture
4.	Developing Winning Research Proposals in Agricultural Research
5.	Technical and Administrative support for Consortia-based Research in Agriculture
6.	Decision Support Systems for Geospatial Knowledge Management for Sustainable Livelihoods Security
7.	IT-based Decision Support System for Digital Content Management
8.	IT-based Decision Support Systems for Multimedia Content Development
9.	IT-based Decision Support Systems using Video for Participatory Development
10.	IT-based Decision Support system using Open Source Systems for e-learning

(ii) **e-learning modules:** 59 e-learning courses for the PG programmes at NAARM covering the areas of agricultural management, information management in agriculture and intellectual property management in agriculture using MOODLE LMS.

(iii) **Case studies:** 15 case studies covering commodity supply chains, rural livelihoods assessments and intellectual property management have been developed.

Websites/Software/data products

(i) Web sites developed:

- a. Village Knowledge Centre and web portal for SHGs in Aipur village (incollaboration with Dhan Foundation and SAIRD);
- b. Web portal: for digital media resources centre in Plone CMS

(ii) Databases:

- a. State, district, block and village level databases in MS Access of agricultural production and resources, and socioeconomic data,
- b. spatial databases in GIS, and vulnerability indicator maps for assessing vulnerability of rural livelihoods at block level for Nalgonda district of AP
- c. Literature and patent databases of nanotechnology based researchers in agriculture

Working papers

Reddy, K.M. 2010. Effective Teaching Methodologies. Learning and Capacity Building series. Paper-1.

Murthy, G.R.K., Reddy, K.M., Ramarao, D., Bhasker Rao, E., and Rajani, G. 2010. E-Teaching Techniques, Learning and capacity building series. Paper-1.

Papers presented in Seminars / Workshops / Symposia / Conferences, etc.

Babu, D. (2010). "Value chains of milk and milk products in organised sector of Tamil Nadu - A

comparative analysis” at 18th National Conference of Agricultural Economics Research Association (AERA) at NAARM, Hyderabad on Nov.18, 2010.

Bharath S. Sontakki, and Samanta, R. K. (2010). “Next generation agricultural extension system in India: Prospects and options” in the NAARM-IFPRI workshop on Redesigning Agricultural Extension in India: Challenges and Opportunities at NAARM, Hyderabad on Aug. 20 and 21, 2010.

Jayaraghavendra Rao, V.K., Meena, P. C., and Babu, D. (2010). “Agribusiness extension” in NAARM-IFPRI workshop on Redesigning Agricultural Extension in India: Challenges and Opportunities at NAARM, Hyderabad on Aug 20-21, 2010.

Joshi, P. K. (2010). “Conservation agriculture: An overview”. Key note address in the 70th Annual Conference of the Indian Society of Agricultural Economics at Jammu University, Jammu on Nov. 29, 2010.

Joshi, P. K. (2010). “Massive scientists-farmer interaction” (panelist). National Consultation on “Future approaches of agricultural extension” at Indian Council of Agricultural Research, New Delhi on Nov. 2, 2010.

Joshi, P. K. (2010). “Policies to promote millets”. Brainstorming Workshop on “Promoting millets in India” organized by DAC, NIRD and ICAR at NIRD, Hyderabad on Nov. 12 and 13, 2010.

Joshi, P. K. (2010). “Historical perspective of prioritization, monitoring and evaluation. Special session on PME in National Agricultural Research System” at NAARM, Hyderabad on Nov. 19, 2010.

Joshi, P. K., and Challa, J. (2011). “Higher agricultural education in India: Status, challenges and opportunities” at 98th Indian Science Congress at SRM University, Chennai on Jan. 5, 2011.

Joshi, P. K., and Birthal, P.S. (2011). “Harnessing Potential of eastern India: Challenges and Opportunities”. X Agricultural Science Congress, Lucknow on Feb. 12, 2011.

Joshi, P. K. (2011). “Research to Market in Agriculture”, panel discussion on “Streamline Symposium” at International School of Business, Hyderabad on March 4, 2011.

Joshi, P. K. (2011). “Capacity Building in NARS: Role of NAARM”, at Directors' Conference at NASC complex, New Delhi on March 24, 2011.

Manikandan, P. (2010). “Capacity building, training, and motivation for organizations”. At national seminar on Reforms in Governance and Administration by UGC-Academic Staff College, University of Hyderabad on Aug. 30 and 31, 2010.

Manikandan, P. (2010). “HRD needs for middle-level managers” at Building Leadership in Agricultural Research Management: Concerns and Future Strategy at NAARM, Hyderabad on Aug. 27 and 28, 2010.

Murthy, G.R.K., Reddy, K.M., Rama Rao, D., Bhasker Rao, E., and Rajani, G. (2010). “e-Learning as a technology intervention in Agriculture education” at 24th National Convention of Agricultural Engineers held by Institution of Engineers, Hyderabad on Jan. 24, 2011.

Nanda, S.K., Sontakki, B.S., and Avtarsingh Rana (2010). “Fostering innovation through six sigma in public-sector R&D organizations” at International Conference on Innovative Practices in Management and Information Technology for Excellence by Maharaja Agrasen Institute of Management and Technology, Jagadhri, Haryana on May 8, 2010.

Rama Rao, D., Nanda, S.K., and Rashmi Agrawal. (2010). “Manpower planning in agriculture”, at AQUAINVEST, 2010 organised at CIFE, Mumbai on May 27, 2010.

Rama Rao, D., Murthy, G.R.K., Reddy, K.M., Rao, V.K.J., Reddy, M.N., Sandhya Shenoy, N., and Bhasker Rao, E. (2010). “Skill building strategies for e- learning in Indian agriculture” at e-India, 2010 held at Hyderabad International Convention Center Hyderabad, India from Aug. 4 to 6, 2010.

Ranjit Kumar. (2010). "Food Demand and Supply Prospects in India: 2011-12 and 2020-21" in a Conference on Indian Agriculture: Are we heading for a Malthusian Crisis by Confederation of Indian Industry (CII) at Hotel The Park, Hyderabad on Feb. 19, 2011.

Rao, K.H. (2010). "Quality, safety and traceability of perishables in agri-food chain: Indian perspectives and experiences" in the National Conference on Managing Agri-Food Supply Chain organized by IIM, Lucknow during April 9-11, 2010.

Reddy, G.P. (2010). "Value chains and retailing of fresh vegetables and fruits in Andhra Pradesh" in 18th National Conference of Agricultural Economics Research Association (AERA) on Nov. 19, 2010. NAARM, Hyderabad.

Reddy, K.M. (2011). "Rural Knowledge Management: New vistas" in 13th Annual Conference of Society of Statistics, Computer and Applications held at NAARM, Hyderabad on Feb. 24- 26, 2011.

Reddy, K.M. (2011). "Content management system in reference to e-learning" in 13th Annual conference of Society of Statistics, Computer and Applications held at NAARM, Hyderabad on Feb. 24-26, 2011.

Sandhya Shenoy, N. (2010). "Gender perspective in redesigned agriculture extension systems in India" in NAARM-IFPRI Workshop on Redesigning Agricultural Extension in India: Challenges and Opportunities at NAARM, Hyderabad on Aug. 20-21, 2010.

Sandhya Shenoy, N. (2010). "Women in sustainable agriculture and role of professional women in empowering farm women" in National Workshop on 'Mahila kisan sasaktikaran pariyojana' by NIRD on Nov. 1 and 2, 2010.

Saravanan, M. and Soam, S.K. (2010). Exploitation of minor millets genetic resources for poverty alleviation in India. Proceedings of National conference on 'Biodiversity, development and poverty alleviation' held at UP State Biodiversity Board, Lucknow, May 22, 2010. 110-111pp.

Sasidhar, P.V.K., and Bharat S. Sontakki. (2010). "Delivery of livestock extension services under public, private and public private partnerships - Global experiences and implications for India" in the NAARM-IFPRI workshop on Redesigning Agricultural Extension in India: Challenges and Opportunities at NAARM, Hyderabad on Aug. 20 and 21, 2010.

Sinha, R.K., and Ranjit Kumar. (2010). "Innovative technologies, institutions and policies for successful value chains for Tur farmers: A case study of NCDEX spot" in 18th Annual Conference of AERA at the Academy.

Soam, S.K. (2010). Commercialization of Indigenous Health Drinks through Protecting Community Intellectual Property Rights at 4th World Ayurveda Congress organized by Dept of Ayush, Ministry of H&FW, Govt of India at Bengaluru from Dec. 9 to 13, 2010.

Soam, S.K. (2010). Delivered invited lecture on 'Geographical Indications as Community Participation Tool for Natural Resource Management' at International Conference on 'Good Rural Governance and Citizen Participation' on March 21, 2011. The conference was organized by Institute of Rural Research and Development (IRRAD), Jindal Global Law School (JGLS) and University of Baltimore-School of Law on March 21 and 22, 2011 at India Habitat Center, New Delhi.

Faculty News

Participation in Seminars/ Workshops/ Symposia/ Conferences, etc.

P. Manikandan, HoD, HRM Division

- National Dialogue on “Leadership Building Leadership in Agricultural Research Management: Concerns and future strategy” organized by NAARM and TAAS, New Delhi on Aug. 27-28, 2010.
- National consultation on “Role of NAARM in changing R&D perspectives” on Jan. 6 and 7, 2011.

R. Kalpana Sastry , HoD, ARSMP Division

- Society for Technology Management (STEM) Annual Summit 2010 held at Fortune Select Global, Gurgaon from Sept. 29 to Oct.1, 2010.

M.N. Reddy, HoD, ICM Division

- Participated in the workshop on knowledge discovery for rural systems organized at IIIT, Hyderabad held in conjunction with the “14th Pacific - Asia conference on knowledge discovery and data mining during June 21-24, 2010.

K.M. Reddy, Principal Scientist

- 18th Agricultural Economics Research Association (AERA) conference on “Value Chains of Agricultural Commodities and their Role in Food Security and Poverty Alleviation” at NAARM, Hyderabad during Nov. 18-20, 2010.
- National Consultation on Role of NAARM in Changing R&D Perspectives at NAARM, Hyderabad Jan. 6-7, 2011.

D. Rama Rao, Principal Scientist

- Seminar on Policy Framework for Fisheries and Aquaculture Sector in India, organized by IAICE at CIFE, Mumbai on May 26-27, 2010

- First meeting of working group for Agricultural Sector - under XI five year plan project - Human Resource Development / Capacity Building in educational institutions, organized at BIS, New Delhi on Aug. 2, 2010.

N. Sandhya Shenoy, Principal Scientist

- NAARM-IFPRI workshop on Redesigning Agricultural Extension in India: Challenges and Opportunities organized at NAARM, Hyderabad on Aug. 20-21, 2010.
- National workshop on '*Mahila kisan sasaktikaran pariyojana*' organized by NIRD, Hyderabad on Nov. 1 and 2, 2010.
- Training on Science and Technologies for Rural Societies organized by Centre for Disaster Management at Lal Bahadur Shastri National Academy for Administration (LBSNAA) Mussouri during Dec. 6-17, 2010.
- Training on Information and communication Technologies in Agriculture - Indian experience at Iowa State University, Iowa State, USA on Feb. 25, 2010.
<http://connect.extension.iastate.edu/p83672031/>

S.K. Nanda, Principal Scientist

- Special seminar on Policy Framework for Fisheries and Aquaculture Sector in India, organized by IAICE at CIFE, Mumbai on May 26-27, 2010.

G.P. Reddy, Principal Scientist

- National Conference on “Managing agri-food supply chain” organized by Indian Institute of Management, Lucknow from April 9 to 11, 2010.
- Agricultural Economics Research Association (AERA) conference on “Value Chains of Agricultural Commodities and their Role in Food Security and Poverty Alleviation” at NAARM, Hyderabad from Nov. 18 to 20, 2010.

- 70th Indian Society of Agricultural Economics (ISAE) Annual Conference organized by University of Jammu, Jammu from Nov. 29 to Dec. 1, 2010.
- International Conference on “Agricultural Marketing in the Context of Changing Global Economic Order” organized by the Institute of Development Studies, University of Mysore, Mysore on March 25 and 26, 2011.

R.V.S. Rao, Principal Scientist

- National workshop on Agribusiness knowledge exchange from April 22 to 24, 2010.
- Redesigning Agricultural Extension in India: Challenges and Opportunities on Aug. 20-21, 2010.
- National Dialogue on Leadership Building Leadership in Agricultural Research Management: Concerns and future strategy organized by NAARM and TAAS on Aug. 27 and 28, 2010.
- 18th Annual Conference of Agricultural Economics Research Association on Nov. 18-20, 2010.
- National consultation on Role of NAARM in changing R&D perspectives on Jan. 6 and 7, 2011.

S.K. Soam, Principal Scientist

- National Dialogue on 'Building leadership in agricultural research management: concerns and future strategy', jointly organized by Trust for Advancement of Agricultural Sciences, New Delhi and NAARM, held at NAARM, Hyderabad on Aug. 27-28, 2010.
- National workshop on 'Livelihood opportunities for smallholders: Challenges and prospects' jointly organized by NAAS, New Delhi, IFPRI, New Delhi office and NAARM, held at NAARM, Hyderabad on Sept. 7-8, 2010.
- International Conference on “Progress and Protection through Geographical Indication”. organized by UNCTAD-Commerce Ministry, Government of India- DFID project on Strategies and Preparedness for Trade and Globalisation in India at Hotel Taj Mahal, New Delhi on Nov. 16-17, 2010.

- Chaired the session on 'Recommendations on Post GI Initiatives and Registration' in the National Conference on 'Geographical Indications from AP: The Way Forward' held at Hotel ITC Grand Kakatiya, Hyderabad. The conference was jointly organized by Confederation of Indian Industry (CII) and AP Technology Development Promotion Center (APTDC) on Nov. 29, 2010.

B.S. Sontakki, Principal Scientist

- ICAR Interface Meeting with Dr K. Kasturirangan, Member (Science), Planning Commission, Government of India, New Delhi at NAARM, Hyderabad on May 13, 2010.
- NAARM-IFPRI Workshop on Redesigning Agricultural Extension in India: Challenges and Opportunities at NAARM, Hyderabad on Aug. 20 - 21, 2010.
- National Dialogue on Building Leadership in Agricultural Research Management - Concerns and Future Strategies jointly organized by NAARM and TAAS on Aug. 27 - 28, 2010 at NAARM, Hyderabad.
- National Workshop on Livelihood Opportunities for Smallholders: Challenges and Opportunities jointly organized by National Academy of Agricultural Sciences, New Delhi; IFPRI New Delhi Office; and NAARM, Hyderabad on Sept. 7 and 8, 2010 at NAARM.
- 18th Annual Conference of Agricultural Economics Research Association (AERA) on Value chains of agricultural commodities and their role in food security and poverty alleviation from Nov. 18 to 20, 2010.
- Consultation on Innovations and Reforms promoted by CGG and other development departments in governance and programme delivery on Nov.12, 2010 at Centre for Good Governance (CGG), Hyderabad.
- Consultation on Future Extension Strategies at MANAGE, Hyderabad on Nov. 30, 2010.
- Consultation on Future Extension Strategies at MANAGE, Hyderabad on Dec.12, 2010.
- National Consultation on Role of NAARM in Changing R&D Perspectives at NAARM, Hyderabad on Jan. 6-7, 2011.

K.H. Rao, Principal Scientist

- National Conference on “Managing Agri-Food Supply Chain” organized by IIM, Lucknow during April 9-11, 2010.
- National Workshop on “Agribusiness Knowledge Exchange” organized at NAARM, Hyderabad during April 22-24, 2010.
- National Seminar on “Promotion of Indigenous Dairy Products in International Market” organized by National Dairy Research Institute, Karnal on Jan. 22, 2011.
- Conference on “Indian Agriculture - Are we heading for a Malthusian crisis” organized by Confederation of Indian Industry (CII) at Hyderabad on Feb. 19, 2011.
- MDP on “Agribusiness Supply Chain Management” organized at Indian Institute of Management, Lucknow from March 14 to 18, 2011.

A. Dhandapani, Principal Scientist

- XVI National conference of Agricultural Research Statisticians at IASRI, New Delhi held on Dec. 23 and 24, 2010.
- 64th Annual Conference of Indian Society of Agricultural Statistics at BCKV, Kalyani held on Dec. 3-5, 2010.
- Launch workshop of NAIP Project, “Developing, commissioning, operating and managing an online system for NET/ARS - prelim examination in ASRB- ICAR”, at NASC Complex, New Delhi on July 1, 2011.

V.K.J. Rao, Principal Scientist

- National Workshop on Livelihood Opportunities for Smallholders: Challenges and Prospects organized by NAAS-NAARM-IFPRI on Sept. 7 and 8, 2010.
- National Dialogue on Leadership Building Leadership in Agricultural Research Management: Concerns and future strategy organized by NAARM and TAAS, New Delhi on Aug. 27 and 28, 2010.
- 18th Annual Conference of Agricultural Economics Research Association at NAARM from Nov. 18 to 20, 2010.

- Training on Science and Technologies for Rural Societies at LBSNAA, Mussorie from Dec. 6 to 17, 2010.
- A training programme on “Business-driven Action Learning” at Indian School of Business (ISB), Hyderabad on March 4 and 5, 2011.

K. Srinivas, Principal Scientist

- ICAR-Industry meet at NASC complex, New Delhi on July 28-29, 2010.
- National Dialogue on building leadership in agricultural research management: Concerns and Future strategy. NAARM, Hyderabad on Aug. 27 and 28, 2010.
- Short course on “Modern Analytical Methods in Finance for Use in Agribusiness” conducted by University of Florida-ICRISAT Distance Education Centre at ICRISAT, Hyderabad from Aug. 9 to 13, 2010.
- National Workshop on Livelihood Opportunities for Smallholders: Challenges and Prospects. NAARM Hyderabad, Sept. 7-8, 2010.
- National Workshop on “Hindi Mei Krishi SHodh Patra Lekhan Evam Prastutikaran Ki Gunvattata” NAARM, Hyderabad, Oct. 29, 2010.
- 18th Annual Conference of Agricultural Economics Research Association at NAARM, Nov. 18-20, 2010.
- 70th Annual Conference of Indian Society of Agricultural Economics at University of Jammu, Nov. 29 - Dec. 1, 2010.

- Short Course on Modern Analytical Methods in Finance for Use in Agribusiness at ICRISAT in collaboration with University of Florida, Hyderabad, Aug. 9-13, 2010.

R. Venkattakumar, Principal Scientist

- NAARM-IFPRI Workshop on Redesigning Agricultural Extension in India: Challenges and Opportunities at NAARM, Hyderabad on Aug. 20-21, 2010.
- Workshop on Consultation on Future Extension Strategies. organized by MANAGE, Hyderabad Nov. 30, 2010.

- Workshop on “Rural technologies for sustainable livelihood” at National Institute for Rural Development (NIRD), jointly organized by NIRD and Advanced Materials and Processes Research Institute (CSIR-AMPRI) on Feb. 4, 2010.

G.R.K. Murthy, Senior Scientist

- International ICT event - 6th E-India - 2010 at International Convention Centre, Hyderabad from Aug. 4 to 6, 2010.
- Seminar on “ICT in Agriculture”, at Farmers meet in Anantapur conducted by i-Kisan, Hyderabad on July 23, 2010.

Ranjit Kumar, Senior Scientist

- Workshop on 'Climate Change, Agriculture and Food Security- Exploring key research and development priorities and developing regional scenarios' organized by Challenge programme of CCAFS at NASC Complex, New Delhi on Nov. 8-10, 2010.
- IFPRI-IMPACT (International Model for Policy Analysis of Agricultural Commodities and Trade) model training at ICRISAT, Hyderabad from Oct. 27 to Nov. 2, 2010.
- Short course on “Modern Analytical Methods in Finance for Use in Agriculture” jointly organized by University of Florida and ICRISAT at ICRISAT, Hyderabad from Aug. 9 to 13, 2010.
- 18th National Conference of Agricultural Economics Research Association (AERA) NAARM, Hyderabad from Nov. 18 to 20, 2010.
- Workshop on “Challenge programme on climate change, agriculture and food security: Research and development priorities and scenario development” at NAS Complex, New Delhi from Nov. 8 to 10, 2010.

Jyothi Badri, Scientist

- Training Programme on “Questel Search Engines” organized by Siddhast Innovations, India Habitat Centre, New Delhi on April 27, 2010.
- Workshop on “Empirical Research on WTO and other issues in International Trade” organized by UNCTAD-India, under UNCTAD, Commerce

Ministry, Govt. of India under DFID project “Strategies and Preparedness for Trade and Globalization in India” Taj Ambassador, New Delhi from July 6 to 8, 2010.

- “STEM Annual Summit - 2010” organized by Society for Technology Management (STEM) at Fortune Select Global, Gurgaon, New Delhi from Sept. 29 to Oct. 1, 2010.
- National Conference on “Building Next Practices of IP Management” organized by the Confederation of Indian Industry (CII) and Andhra Pradesh Technology Development and Promotion Centre (APTDC) at Taj Krishna, Hyderabad on July 15 and 16, 2010.
- Training Programme on “Data Analysis using SAS” organized by NAARM from Jan. 13 to 18, 2011.
- Sensitization Training Programme on “Bioinformatics Resources and Tools for Agricultural Research” organized by National Agricultural Bioinformatics Grid, Centre for Agricultural Bioinformatics, IASRI from Jan. 24-29, 2011.

D. Babu, Scientist

- 21-days training on “Management Development Programme on Agribusiness Management” at Indian Institute of Management, Lucknow from June 14 to July 4, 2010.
- Workshop on “Empirical Research on WTO and Other Issues in International Trade” organized by UNCTAD India Programme under UNCTAD, Commerce Ministry, Govt. of India, DFID project “Strategies and Preparedness for Trade and Globalization in India” in New Delhi on July 6-8, 2010.
- NAARM-IFPRI workshop on “Redesigning Agricultural Extension in India: Challenges and Opportunities” at NAARM, Hyderabad on Aug. 20 and 21, 2010.
- NAARM-TAAS National Dialogue on “Building Leadership in Agricultural Research Management: Concerns and Future Strategy”, at NAARM, Hyderabad on Aug. 27 and 28, 2010.
- National Workshop on “Livelihood Opportunities for Smallholders: Challenges and Prospects”,

organized by NAARM-IFPRI and NAAS at NAARM, Hyderabad on Sept. 7 and 8, 2010.

- IFPRI-IMPACT (International Model for Policy Analysis of Agricultural Commodities and Trade) model training at ICRISAT, Hyderabad from Oct. 27 to Nov. 2, 2010.
- Agricultural Economics Research Association (AERA) conference on “Value Chains of Agricultural Commodities and their Role in Food Security and Poverty Alleviation” at NAARM, Hyderabad from Nov. 18 to 20, 2010.
- Management Development Programme on “Case Teaching and Writing for Agribusiness Education” at IIM, Lucknow from Jan.19 to 21, 2011.
- A conference on “Agro Exports from Andhra Pradesh - Present and Emerging Scenario” organized by Confederation of Indian Industry(AP) and APEDA on March 16, 2011 at Hotel ITC, The Kakatiya, Hyderabad.
- Attended Business plan competition “Metamorphosis” organized by Foundation for MSME Clusters (FMC), Indian School of Business (I S B) and I K P Knowledge Park along with Dr Jyothi Badri on Jan. 5, 2011 at ISB, Gachibowli, Hyderabad.
- Attended Management Development Programme on “Case Teaching and Writing for Agribusiness Education” at IIM, Lucknow along with Dr P.C. Meena during Jan. 19-21, 2011.
- Attended the Conference on “Agro Exports from Andhra Pradesh - Present and Emerging Scenario” organized by CII-AP and APEDA on Mar. 16, 2011 at Hotel ITC Kakatiya, Hyderabad.

P.C. Meena, Scientist

- Workshop on 'Quantitative Modeling Approaches for Economic Policy Analysis in Agriculture' at National Centre for Agricultural Economics and Policy Research, New Delhi on Aug. 12 and 13, 2010.
- Management Training Programme “Case Teaching and Writing for Agribusiness education” at Indian Institute of Management, Lucknow from Jan.19 to 21, 2011.

- Workshop of NAAS-NAARM-IFPRI on “Livelihood Opportunities for Smallholders: Challenge and Prospect” on Sept. 7 and 8, 2010.
- Agricultural Economics Research Association (AERA) conference on “Value Chains of Agricultural Commodities and their Role in Food Security and Poverty Alleviation” attended at NAARM, Hyderabad from Nov. 18 to 20, 2010.

Ananta Sarkar, Scientist

- Workshop of NAAS-NAARM-IFPRI on “Livelihood Opportunities for Smallholders: Challenge and Prospect” on Sept. 7-8, 2010.

Participation of Faculty and Staff in Different Programmes:

Dr P. K. Joshi, Director, attended the following programmes:

- ◆ Review Meetings regarding Agricultural Research Service (ARS) disciplines and eligibility qualifications for various scientific positions in ICAR under chairmanship of Dr R.S. Paroda at ASRB, New Delhi on May 17, 2010 and also on June 29, 2010.
- ◆ Governing Body Meeting of ICAR at New Delhi and gave presentation on ICAR 2030 on July 2, 2010.
- ◆ Directors' Conference at New Delhi on July 15 and 16, 2010.
- ◆ Chief Guest on the Foundation Day of Directorate of Oilseeds Research, Hyderabad on Aug. 2, 2010.
- ◆ 238th Meeting of the Board of Management of Acharya N.G. Ranga Agricultural University at Teacher's Home, Secunderabad on Aug. 6, 2010.
- ◆ Brainstorming discussion on “Strategies for Increasing Production of Oilseeds / Vegetable Oils” at Directorate of Oilseeds Research, Hyderabad on Aug. 7, 2010.
- ◆ Chief Guest for the Workshop on “Experimental Learning (EL) - Stakeholders Meet” of Acharya N.G. Ranga Agricultural University, Hyderabad on Aug. 9, 2010.
- ◆ 218th Governing Body Meeting at ICAR, New Delhi on Sept. 3, 2010.
- ◆ Meeting to review the ARS Disciplines at ASRB on Oct. 1, 2010.

- ◆ Attended the Review Meeting regarding ARS disciplines and eligibility qualifications for various scientific positions in ICAR under Chairmanship of Dr R.S. Paroda at ASRB, New Delhi on May 17, 2010
 - ◆ Attended the Review Meeting regarding ASR Disciplines and eligibility qualifications for various scientific positions in ICAR under Chairmanship of Dr R.S. Paroda at ASRB, New Delhi on June 29, 2010.
 - ◆ Special meeting of the Vice-Chancellors' of Agricultural Universities at NASC Centre, New Delhi on Oct. 4, 2010.
 - ◆ First meeting of the committee for National Agricultural Education Project (NAEP) under the Chairmanship of Dr Panjab Singh, Ex-Secretary, DARE and DG, ICAR at ICAR on Oct. 6, 2010.
 - ◆ Research Advisory Committee meeting of CSSRI, Karnal on Oct. 22, 2010.
 - ◆ 240th meeting of the Board of Management at Regional Agricultural Research Station, Palem, Mahboobnagar District of Acharya N.G. Ranga Agricultural University on Oct. 29, 2010.
 - ◆ National consultation meeting on “Future Approaches in Agricultural Extension” at NASC Complex, New Delhi on Nov. 1, 2010.
 - ◆ Meeting of Core Group on Right to Food, National Human Rights Commission (NHRC), New Delhi on Nov. 2, 2010.
 - ◆ Steering committee meeting of Climate Change, Agriculture and Food Security at New Delhi on Nov. 8 and 9, 2010.
 - ◆ Co-chaired the session on “Overview and Importance of Millets” in the “National Seminar on Millets” at NIRD conducted by Directorate of Sorghum Research, Rajendranagar, Hyderabad on Nov. 12, 2010.
 - ◆ Chaired the technical session on “Knowledge Gaps and Research Issues” of the VDSA Annual Review Meeting at ICRISAT, Patancheru on Nov. 22, 2010.
 - ◆ 70th Annual Conference of the Indian Society of Agricultural Economics, University of Jammu on Nov. 29, 2010.
 - ◆ 241st Meeting of the Board of Management at College of Home Science, Hyderabad of Acharya N.G. Ranga Agricultural University, Hyderabad on Dec. 1, 2010.
 - ◆ Chief Guest for the Winter School on “Requirements and development in processed meat sector for better utilization of meat animal resources” at National Research Centre on Meat, Chengicherla, Hyderabad on Dec. 7, 2010.
 - ◆ Attended the 5th Dr M.S. Swaminathan Award Function and also Brainstorming Workshop on “Prospects of Producing 100mt of Wheat by 2015” jointly organized by TAAS and Directorate of Wheat Research at NASC Complex on Dec. 18, 2010.
 - ◆ 98th Indian Science Congress at SRM University, Chennai on Jan. 5, 2011.
 - ◆ Project Advisory Committee (PAC) meeting of the project on “Tracking Change in Rural Poverty in Household and Village Economics in South Asia” at NCAP, New Delhi on Jan. 11, 2011.
 - ◆ National consultation of National Agricultural Education Project (NAEP) meetings at UAS, Bengaluru on Jan. 19 and 20, 2011, and also at NASC complex, New Delhi on Feb. 20 and 21, 2011.
 - ◆ Meeting of the Task Force constituted to develop an action plan for sustainable development of millet at Krishi Bhavan, New Delhi on Jan. 21, 2011.
 - ◆ Tenth Agricultural Science Congress at NBFGR, Lucknow from Feb.10 to 12, 2011.
 - ◆ Meeting of Committee on Review of ARS disciplines, NASC Complex, New Delhi on Feb. 15, 2011.
 - ◆ Vice-Chancellors' Conference at NASC Complex, New Delhi on Feb. 22, 2011.
 - ◆ Directors' and Vice-Chancellors' interface meeting at New Delhi on Feb. 23, 2011.
 - ◆ Meeting with Director General, ICAR along with chairman of RAC at NASC complex, New Delhi on Feb. 28, 2011.
- R. Venkattakumar, Principal Scientist, participated in training programme (Short Course) on 'Creative Writing in Agriculture' at Indian Institute of Mass Communication (IIMC), Dhenkanal, Orissa during May 10-15, 2010.
- R. Venkattakumar, Principal Scientist, participated in National Symposium on 'Research development in Castor: Present status and future strategies' at

Hyderabad organized by Indian Society of Oilseeds Research during Oct. 22 and 23, 2010.

N. Raghunath, Private Secretary, attended 58th Workshop on Personal, Professional Development for Private Secretaries at Institute of Secretariat Training and Management (ISTM), New Delhi from Sept. 6 to 17, 2010.

P.G. Kohad, Assistant; Mr M. Sridhar, UDC; Mr R. Chandra Babu, UDC; Mr P. Venkatesh, UDC; Mrs Y. Gayathri, UDC; and Mrs S. Shanti, Stenographer (G-III), attended ICAR-sponsored training programme on 'Establishment and Financial Matters' organized at the Academy from July 1 to 6, 2010 and from Sept. 13 to 22, 2010.

M.A. Basith, Technical Officer, participated in National Symposium on 'Research and development in Castor: Present status and future strategies' at Directorate of Oilseeds Research, Hyderabad organized by Indian Society of Oilseeds Research on Oct. 22 and 23, 2010.

K.H.Rao, Ranjith Kumar, P.C. Meena and D.Babu attended the Conference on 'Indian Agriculture: Are we headed for a Malthusian crisis' organized by CII at Hotel Park, Somajiguda, Hyderabad on Feb. 19, 2011.

G. Aneja, Technical Officer, attended 11th Andhra Pradesh Public Relations Conference with main theme 'One India - One Voice for a prosperous and democratic nation' on Feb. 13, 2011.

Foreign visits

- S.K. Soam, Principal Scientist, was deputed on a study visit to Washington State University Research Foundation (WSURF), Office of Intellectual Property Administration, Washington State University (WSU) at Pullman, USA from 30 March to 29 April, 2010 under National Agricultural Innovation Project (NAIP). During the visit, he interacted with faculty of WSURF; participated in negotiation process of start-up companies; and had specific interaction with officials from Seattle Chamber of Industries, University of Washington and an international non-profit organization 'PATH' at Seattle. It is proposed to bring out a joint publication of NAARM and WSURF on "Technology management guide book" for the

officials of ITMUs, ZTMCs, business planning development units and other organizations in Indian NARS. An international capacity building programme will also be organized at NAARM by the WSURF for the Intellectual Property and technology management officials at Indian NARS. The recommendations for international network with WSU to strengthen the agri-business knowledge centre at NAARM. He also participated in The CGIAR Central Advisory Service on Intellectual Property (CAS-IP) Annual Meeting of the National Partners Initiative held at Venable LLR, Washington DC, June 13-19, 2010.

- Jagannadham Challa, Principal Scientist, was deputed on a study visit to University of Maryland, USA from March 22 to April 5, 2010 under L&CB component of National Agricultural Innovation Project (NAIP). As a part of the programme, he focused on issues like human resource management, managing agricultural education system, etc. and held in-depth interactions with the faculty, and gained insights in those areas.
- M.N. Reddy, Principal Scientist, was deputed on a study visit to University of Georgia, Griffin, Georgia, USA from March 22 to April 2, 2010. He underwent training programme on "Crop simulation models and geospatial knowledge management" at Department of Biological and Agricultural Engineering of the university. During the training programme he also studied Decision Support Systems for Agro-tech Transfer (DSSAT) and its applications in the area of precision farming, impact of climate change and variability on crop production, etc. Dr Reddy interacted with various faculty of geo-spatial knowledge management and discussed in depth the course curriculum of Geographical Information System (GIS) and remote sensing.
- P.K. Joshi, Director, attended the Planning Workshop and Steering Committee Meeting of the "Challenge Programme on Climate Change, Agriculture and Food Security (CCAFS)" at Nairobi, Kenya, from May 3 to 8, 2010.
- P.K. Joshi also attended the Review Meeting of International Centre for Agricultural Research in the Dry Areas (ICARDA) at Syria from May 26 to June 1, 2010.

- K.V. Kumar, Technical Officer, was deputed on a study visit to University of Georgia, Griffin, Georgia, USA from May 7 to 21, 2010. He underwent international training programme on “Assessing crop production, nutrient management, climatic risk, environmental sustainability, and simulation models”. He interacted with faculty members of Department of Biology and Agricultural Engineering, and discussed various topics related to applications of GIS in marketing, environment and simulation models, etc.
- R. Kalpana Sastry, Head, Agricultural Research Systems and Management Policies Division, and Dr S.K. Soam, Principal Scientist, attended Annual Meeting of National Partners Initiative at Washington DC, USA from June 13 to 19, 2010 conducted by CGIAR Central Advisory Service on Intellectual Property (CAS-IP), Rome, Italy.
- R. Kalpana Sastry, Head, ARSPM Division, attended the Consultative meeting to facilitate development of the proposal for the CGIAR's Mega Program-2 titled “Policies, Institutions, and Markets to Strengthen Assets and Agricultural Incomes for the Poor” at ILRI Campus in Addis Ababa, Ethiopia from Aug. 17 to 19, 2010.
- M. N. Reddy, Head, Information and Communication Management Division was deputed as a resource person for conducting contact sessions for the students of PG Diploma in Sustainable Rural Development at Afghanistan Institute of Rural Development (AIRD), Kabul, Afghanistan from Dec. 20 to 28, 2010. The contact sessions were organized by National Institute of Rural Development (NIRD) as a part of their one year distance learning PG diploma programme. Dr Reddy conducted the contact sessions for 21 participants for two courses, namely development methods and techniques, and rural livelihoods and resources.
- Dr K. Srinivas, Principal Scientist, has been deputed to Kansas State University, USA to study on Agri-business Management with focus on Agricultural Finance and Microfinance from March 26 to April 25, 2011.
- G.R.K. Murthy, Senior Scientist, has been deputed on a study visit to Tennessee State University, USA from March 31 to April 29, 2011 to study on Agri-business Management with focus on Supply Chain Management and e-commerce.
- Ananta Sarkar, Scientist, was deputed for international training in the area of Quantitative Methods and Business Statistics to Cornell University, Ithaca, New York, USA from March 28 to April 27, 2011.

Guest faculty / Special lectures delivered

R. Kalpana Sastry

- Nanotechnology research and exciting prospects as research career to school children. Lecture at 1st National Science Congress at Delhi Public School, Vijayawada, on Nov.12, 2010.
- Nanotechnology research and exciting prospects as research career to school children. Lecture at Special session of Science Club of Flora Public School, Vuyyuru, Andhra Pradesh.
- R. Kalpana Sastry, H. B. Rashmi and N. H. Rao, 2010. **Assessing Interrelationships between R&D in Agriculture and Nanotechnology.** Poster presentation for World Bank review committee.
- Invited speaker on “IPR and Benefit Sharing under CBD and Traditional Knowledge in India” at NRDC-Min of S&ME and on “Intellectual Property and Innovation Management in Knowledge Era” at GITAM University, Visakhapatnam on Nov. 26 and 27, 2010.
- Invited talk on the theme: “Intellectual Property Rights” in Management Development Programme for ISRO Scientists/Technologists, conducted from Nov. 15 to 26, 2010, at ASCI, Hyderabad on Nov. 17, 2010.
- Invited talk on “Current IP Regime” in “Challenges for building managerial and leadership skills among women scientists the R&D Sector” at ASCI, Hyderabad on Nov. 29, 2010.
- Invited speaker on “IPR issues in biotechnology” in Hands on Training Programme organized by Agri-Biotech Foundation on May 7, 2010.
- Invited speaker on topic” Intellectual Property Rights and Biological Resources” at two-day Workshop on “Documentation Access and Benefit Sharing of Traditional Knowledge- Role of State Forest Departments” on Aug. 20, 2010 AP Forest Academy.

- Invited Lecture on Indian Patent Laws, WTO and TRIPS for MBA students-Dr Reddy's Laboratories on Dec. 4, 2010.
- Invited Lecture on "Intellectual Property and Technology Transfer issues in Life Sciences" in DST sponsored training programme on technology valorization on Feb. 10, 2011 at ASCI.

M.N. Reddy

- Delivered the lectures i) Effective computer aided instruction and ii) use of spread sheets in learning management to the faculty of College of Agriculture, Assam Agricultural University on 29th July 2010 at Jorhat, Assam

Delivered the lecture and computer practical on "field experimentation at "Barwale Knowledge and Study Centre " at Jalna , Maharashtra

J. Challa

- Delivered guest lecture in In-house Workshop of the College on Educational Technology and Scientist-Administration Interface for students, non-teaching, staff and faculty of the college - College of Agricultural Engineering and Post Harvest Technology, Ranipur, Gangtok, Sikkim - Dec. 14 - 20, 2010.
- Delivered guest lecture in training programme on Advances in Teaching and Learning Process and Students Assessment Tools - College of Agriculture, Assam - August 19 - 21, 2010.

Delivered guest lecture in training programme on Writing Winning Research Proposals for Officers of Indian Forestry Service - ICFRE, Dehradun - Feb. 14 - 17, 2011.

K.M. Reddy

- Delivered number of Guest lectures to ANGRAU faculty in their training programme on Multimedia and E-learning from 13-17 July 2010, on topics namely Computers in Education, Introduction to Multimedia, Introduction to Flash, Animations using Flash, Special effects using Flash, navigations using Flash and Flash Workshops I, II & III.

D. Rama Rao

- Lecture on E-learning Standards for Capacity building programme on e-learning at ANGRAU, Hyderabad on July 13, 2010

- Lecture on Information Management and Networking initiatives in Indian NARS, to the Training Programme on "ICTs in Agricultural Information Management and Networking" during August 17-21, 2010 at MANAGE, Hyderabad on August 17, 210.

- ICTs for agriculture, Lecture delivered to International Training programme at NIRD on Nov. 4, 2010

- ICTs in farm business management, Lecture delivered to International Training programme at MANAGE on Nov. 24, 2010

- ICTs for agriculture, Lecture delivered to International Training programme at NIRD on Dec. 2, 2010

- Invited lecture on Manpower planning at National Agronomy Conference, held at UAS, Bangalore on Dec.3, 2010

Lecture on Manpower Planning to Workshop on "Manpower Planning for Agriculture" Feb. 1-2, 2011, organized by MANAGE, Hyderabad on Feb.1, 2011.

N. Sandhya Shenoy

- Use of ICT in Agriculture Research and Extension - Experiences of NAARM ICT projects" on Aug. 2, 2010 at MANAGE for 'ICT based DSS for Market and Agribusiness orientation of research and sustaining rural livelihoods' organized from Aug. 2 to 11, 2010.

- Sustainable rural livelihoods and Web page designing on Aug. 5, 2010, at MANAGE for 'ICT based DSS for Market and Agribusiness orientation of research and sustaining rural livelihoods' organized from Aug. 2 to 11, 2010.

- Importance of ICT in Agriculture to Farmers' for 'Orientation on ICT, Market linkages and Agri risk management' under NAIP by iKisan Ltd, at Hanmakonda, Warangal, Andhra Pradesh on Aug. 27, 2010.

- ICT in Agriculture" for 'Orientation on ICT, Market linkages and Agri risk management' under NAIP by iKisan Ltd, at Jamisthipur cluster, Mahabubnagar, Andhra Pradesh on June 29, 2010.

- “Instructional Aids in education” for Orientation course for faculty drawn from degree/post Graduate colleges and universities (April 21 - May 18, 2010), at UGC Academic Staff College of Maulana Azad National Urdu University, Gachibowli, Hyderabad on April 22, 2010.
 - “IT in education” for Orientation course for faculty drawn from degree/post Graduate colleges and universities (April 21 - May 18, 2010), at UGC Academic Staff College of Maulana Azad National Urdu University , Gachibowli, Hyderabad on April 23., 2010.
- “ICT in education” for Orientation course for faculty drawn from degree/post Graduate colleges and universities (21 April - 18May, 2010), at UGC Academic Staff College of Maulana Azad National Urdu University, Gachibowli, Hyderabad on April 28, 2010.

R.V.S. Rao

Guest faculty to State Agricultural Management and Extension training institute (SAMETI), Hyderabad on the topic “Organizational Development through HRD” on Oct. 13, 2010.

S.K. Soam

Invited lectures on “Project management and IP management” by MANAGE, ANGRAU, AP State Horticultural Department, Andhra Pradesh CII and ICAR institutes.

B.S. Sontakki

Guest lecture on “Planning and Management of Training Programmes” delivered in the Training Programme of Management of Training at SAMETI, Hyderabad on Nov. 10, 2010.

K.H. Rao

- Special lectures delivered in “Off-campus programme on improving the efficiency and effectiveness of for technical and administrative staff of IARI, New Delhi”
- Role Perception of employees for efficiency and effectiveness
- Stress Management Strategies
- Team Work - formation, process and execution
- Motivation at individual, group and organizational levels

- Guest faculty for work shop on “Improving the teaching quality in agricultural education” organized by Dr Panjabrao Deshmukh Krishi vidyapeeth, Akola
- Effective teaching - a two dimensional model for student centred teaching and learning
- Learning styles and strategies
- Guest faculty for work shop on “Effective Teaching Methodology” organized by Marathwada Krishi Vidyapeeth, Parbhani
- Curriculum Designing and Development
- Entrepreneurship Development

A. Dhandapani

- Data Management Issues in Developing Information Systems - Invited Talk in 64th Annual Conference of Indian Society of Agricultural Statistics at BCKV, Kalyani on Dec. 3, 2010
- Discussant on "ICT in Agriculture" - XVI National Conference of Agricultural Research Statisticians on 04-12-2010 at IASRI, New Delhi

V.K. J. Rao

- Delivered the guest lecture on 'Gender sensitive works and tools in MGNREGA' on June 8, 2010 at NIRD for the Training programme on Capacity building for addressing gender issues in MGNREGA from June 7 to 12, 2010.
- Delivered the guest lecture on 'Photoshop, Video production and Learning objects' on July 15 and 16, 2010 at Water technology centre hall of ANGRAU for the orientation programme on Multimedia and e-learning for the faculty of ANGRAU from July 13 to 17, 2010.
- Delivered the guest lecture on 'Importance of ICT in Agriculture to farmers on 24th Aug. 2010, at LRC WASSAN Dharmvanam Parigi for the orientation programme KHARIF 2010 on ICT, Market linkages and Agri risk management.
- Delivered the guest lecture on 'Importance of ICT in agriculture to farmers' on 29th Sept. 29, 2010 at Adilabad for the orientation programme on ICT, Market linkages and Agriculture risk management.

- Delivered the guest lecture on 'Importance of ICT in agriculture to farmers' on Sept. 23, 2010 at Bhadrachalam for the orientation programme on ICT, market linkages and Agri risk management.
- Delivered the guest lecture on 'Introduction to agricultural extension management' on July 19, 2010, at SAMETI, Hyderabad for the ATMA-PGDAEM-2009-10 programme-Contact class
- Delivered the guest lecture on 'Training a tool for HRD' on Oct.13, 2010, at SAMETI Hyderabad for the orientation programme HRD for effective extension service.

G.R.K. Murthy

- Delivered guest lecture to the teaching faculty at UGC Academic staff college, Maulana Azad National Urdu University, Hyderabad on 17-12-10, on "E-content development"

Ananta Sarkar

- Delivered lecture on 'Design of Experiment and Multivariate Analysis using SAS' during Jan. 13 - 15, 2011 in the training programme on Data Analysis using SAS for 6 days held during Jan. 13 to 19, 2011 at ICAR Research Complex for NEH Region, Umiam.

G. Aneeja, Technical Officer

- Invited guest lectures for the course on "Public Relations and Development" to the students of Bachelor of Public Relations of B.R. Ambedkar Open University.

Academic Guidance

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

R. Kalpana Sastry

- Two students from ICFAI-Tech University, Dehradun on nanobiotechnology Five Intern trainees (B.Tech) from ICFAI tech, Hyderabad underwent Internship Programme training from NAARM in Nano-biotechnology and got practical exposure in the biosynthesis of nanoparticles in collaboration with DOR, Hyderabad and on nanosilica in DRR and Gulbarga University.
- One research intern from JNTU, Hyderabad undergoing internship programme training from NAARM in Nanobiotechnology and doing hand on experiment on "Effects of multiwalled carbon nanotubes in seed germination and plant growth".

B.S. Sontakki

- Guided 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.

N. Sandhya Shenoy

Guided the following five Ph.D. (Ag Extension) students (4 from YCMOU, 1 from ANGRAU)

- "Scope for Public-Private Partnership in Agriculture Extension Delivery System in Andhra Pradesh"
- "Impact of Farmers Field Schools on cotton farmers of Warangal district in Andhra Pradesh"
- "A critical study on livelihood of tribal farmers in Andhra Pradesh"
- "Paradigm shift in livelihood patterns of small and marginal farmers of AP".
- "Assessment of process implementation of extension reforms in Andhra Pradesh"

Personalia

Welcome



Dr Jyothi Badri joined the Academy as a Scientist (Genetics and Plant Breeding) on April 23, 2010. She did her M.Sc (Ag.) from Acharya N.G. Ranga Agricultural University, Hyderabad. She is a recipient of National Merit Scholarship during 1993-95. Her areas of interest include intellectual property rights, bioinformatics, and intellectual property management in public private partnerships and agro-biodiversity.



Dr Prem Chand Meena joined NAARM as a Scientist (Agricultural Economics) on April 27, 2010. He did his Masters in Agricultural Statistics from Rajasthan Agricultural University (RAU), Bikaner; and Ph.D in Agricultural Economics from Indian Agricultural Research Institute (IARI), New Delhi. He is a recipient of ICAR Senior Research Fellowship during 2001 for Ph. D. Prior to joining the Academy, he served at Central Potato Research Institute, Shimla, as a Scientist, and at National Dairy Development Board, Anand as a Deputy Manager for nearly five years. His areas of interest include agricultural marketing and price analysis; commodity derivatives; and supply chain management.



Dr D. Babu joined the Academy as a Scientist (Agricultural Economics) on April 23, 2010. He did his Ph. D in Dairy Economics from National Dairy Research Institute (NDRI), Karnal. He is a recipient of UGC Junior Research Fellowship and Senior Research Fellowship in Economics. His areas of interest include trade and supply chain management.



Dr Ananta Sarkar joined the Academy as a Scientist (Agricultural Statistics) on April 28, 2010. He did his Ph.D. in Agricultural Statistics from Indian Agricultural Statistics Research Institute (IASRI), New Delhi. He is a recipient of Nehru Memorial Gold Medal, IASRI in 2004; and V.V.R. Murthy Award, IASRI in 2004. Earlier, he served at Directorate of Oil Palm Research, Pedavegi, Andhra Pradesh for three years. His areas of interest include design of experiments, statistical analysis of experimental data and sample surveys.



Dr K. Srinivas joined the Academy as a Principal Scientist (Agricultural Economics) on May 31, 2010. With a Ph.D. in Agricultural Economics, he joined the ICAR service on August 5, 1991. Prior to joining the Academy, he served at Vivekananda Parvatiya Krishi Anusandhan Sansthan (ICAR), Almora for more than 10 years. His areas of interest include farm management, marketing, policy research and management, water management, econometrics and extension.



Dr Ranjit Kumar joined the Academy as a Senior Scientist (Agricultural Economics) on June 22, 2010. He joined ICAR as ARS scientist and served at Indian Agricultural Research Institute (IARI), New Delhi during 2000-2007. Later he joined as Senior Scientist at Indian Institute of Soil Science (IISS), Bhopal on May 01, 2007. He had about 40 research papers to his credit. He taught 'Micro-economics', 'Farm Management' and 'International Trade' courses to post graduate students, and guided two M.Sc. students in the

discipline of Agricultural Economics at IARI, New Delhi. He is a recipient of L.B.S. Young Scientist Award 2005-06 by ICAR, New Delhi. His areas of interest include impact assessment and priority setting, policy research for sustainable agriculture, food security.



Mr Sanjay Kant, Joint Director (Administration) and Registrar, joined the Academy on July 23, 2010. Prior to this, Mr Sanjay Kant was Chief Administrative Officer at the Indian Agricultural Research Institute (IARI), New Delhi.

Mr Kant started his career as Administrative Officer at Indian Veterinary Research Institute, Izatnagar in 1988. At High Security Animal Disease Laboratory (), Bhopal, he worked as Administrative Officer during 1990-1993. Later, he worked as a Senior Administrative Officer at Indian Grassland and Fodder Research Institute (IGFRI), Jhansi and Indian Agricultural Research Institute (IARI), New Delhi during the period 1993-2003. He worked in the capacities of Under Secretary and Secretary at Indian Council of Agricultural Research (ICAR), New Delhi till 2008.



Dr R. Venkattakumar was selected to the Academy as a Principal Scientist (Agricultural Extension) on Nov. 24, 2010. He joined the ICAR service in 2000, and served National Research Centre for Cashew (NRCC), Puttur as a Scientist for nearly seven years. Later, he was selected as a Senior

Scientist at Directorate of Oilseeds Research, Hyderabad. He has been the Associate Editor for the Journal of Oilseeds from 2009 onwards. He won the Best Research Paper Award of Journal of Oilseeds Research for 2009. Dr Venkattakumar bagged Tamil Nadu Agricultural University Merit Scholarships during all undergraduate, postgraduate and Ph. D. programmes. He was also the recipient of “Jawaharlal Nehru Outstanding PG Research Award” of ICAR and “Krubabai Williams Memorial Gold Medal” of Tamil Nadu Agricultural University for his Ph. D. thesis on “Impact of tannery effluent pollution on agriculture and socio-economic status of the farming community”. He obtained PG Diploma

in “Journalism and Mass Communication” from Madurai Kamaraj University and PG Diploma in “IPR and Cyber Laws” from University of Hyderabad. He has more than 70 publications to his credit. His areas of interest include impact assessment, public-private partnership, supply-chain analysis, resource management analysis and farm journalism.



Mr S. Philipose, joined the Academy as Senior Finance and Accounts Officer (SFACO) on Feb. 24, 2011 upon his promotion. Earlier, he was Finance and Accounts Officer at Central Institute for Research on Goats (CIRG), Makhdoom, Uttar Pradesh.

NAARM family welcomes them!

Transfers

Mr P. Mohan Singh, Technical Officer (T-5) has been appointed as Senior System Analyst on deputation to National Institute of Plant Health Management, Hyderabad. He joined the Academy as Computer Assistant (T-II-3) in 1993, and served for 18 years. He was relieved on Feb. 23, 2011.

Mr M. Sridhar, UDC, has been appointed as Assistant on deputation to National Research Centre on Meat, Hyderabad. He joined the Academy as junior clerk in 1991, and served in administration for 20 years. He was relieved on Feb. 17, 2011.

Congratulations! NAARM family wishes them successful career ahead!

Academics

- Dr M.A. Basith, was awarded Ph. D. in Agronomy from Acharya N.G. Ranga Agricultural University (ANGRAU). He worked on “Recent techniques to evaluate the comparative performance of castor-based intercropping systems under different plant geometrics.
- Dr Jyothi Badri, Scientist, was awarded Ph. D. Degree for her thesis titled “Molecular Mapping and Cauterization Yield QTL and Tagging of Wilt Resistant Gene(S) in Sesame (Sesamum Indicum L.)” from Acharya N.G. Ranga Agricultural University on July 5, 2010. She also cleared on-line exam conducted by WIPO Academy in the

Course DL 101: "General Course on Intellectual Property" on Nov. 16, 2010.

- Mr Mohan Singh, Technical Officer, has acquired M. Tech (Computer Science) from Jawaharlal Nehru Technological University, Hyderabad.
- Mrs T. Vanisri, Personal Assistant, has acquired Master of Business Administration from Madurai Kamaraj University in Dec. 2010.

List of Personnel

I. Scientific Staff

Dr P.K. Joshi, Director
Dr N. Hanumantha Rao, Jt. Director

HODs

Dr P. Manikandan, Human Resources Management Division
Dr (Mrs) R. Kalpana Sastry, Agricultural Research Systems Management and Policies Division
Dr M. Narayana Reddy, Information and Communication Management Division

Principal Scientists

Dr Jagannadham Challa
Dr K.M. Reddy
Dr D. Rama Rao
Dr (Mrs) N. Sandhya Shenoy
Dr Santosh Kumar Nanda
Dr G.P. Reddy
Dr R.V.S. Rao
Dr S.K. Soam
Dr Bharat S. Sontakki
Dr K.H. Rao
Dr A. Dhandapani
Dr V.K. Jayaraghavendra Rao
Dr K. Srinivas
Dr R. Venkattakumar

Senior Scientists

Dr G.R.Ramakrishna Murthy
Dr Ranjit Kumar

Scientists

Dr Jyothi Badri
Dr D. Babu
Dr Prem Chand Meena
Dr Ananta Sarkar

II. Administration Staff

Sh. Sanjay Kant, JD(Admn) & Registrar (Since July 23, 2010)
Sh. S. Philipose, Sr. Finance & Accounts Officer (Since Feb. 24, 2011)

Dr (Mrs) J. Renuka, Asst. Director (OL)
Mr Y. Sankara Rao, Administrative Officer (till Jan. 28, 2011)
Sh. P.P. Brahmaji, Asst. Admn. Officer
Sh. P.G. Kohad, Asst. Admn. Officer
Ms. L. Jhansi Lakshmi, Private Secretary
Ms. Sarada Samanta, Private Secretary
Sh. N. Raghunath, Private Secretary

III. Technical Staff

Grade T-9 Cat.III

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

Grade T(7-8) Cat.III

Sh. M.A. Basith, Tech.Officer
Sh.K.V. Kumar

Grade T-6 Cat.III

Sh. Ch. Janardhan Rao
Sh.P. Vijender Reddy
Sh.P. Namdev
Sh. Sohail Ahmed Khan
Ms. G. Aneeja

Grade T-5 (T.Os) Cat.II

Sh.N.R. Nageswara Rao
Sh. Bansidhar Nayak
Sh. L. Ramesh
Sh. M. Shekher Reddy
Sh. B. Veeraiah
Sh. Ahire Laxman
Sh. N. Naresh Kumar
Sh. M. Ravi
Sh. Sham Bahadur
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

Promotions

- Dr V.K. Jayaraghavendra Rao, Senior Scientist has been promoted to Principal Scientist with effect from May 29, 2008 under Career Advancement Scheme.
- Mr C. Bagaiah was relieved from the Academy on May 5, 2010 on his promotion to Assistant Finance and Accounts Officer (AFAO) at Project Directorate on Poultry, Hyderabad. He joined NAARM as Junior Clerk in 1981, since then he

served the Academy in different positions such as senior clerk, assistant and junior accounts officer.

- Mrs N. Vijayalakshmi, Junior Stenographer has been promoted to Junior Accounts Officer on May 26, 2010.
- Mr P. Srinivasu, UDC, has been promoted to Assistant with effect from Dec. 9, 2010.
- Mrs Jessie Ecclicia, UDC, has been promoted to Assistant with effect from Dec. 9, 2010.
- Mr Y. Sankara Rao, Assistant Administrative Officer, has been promoted as Administrative Officer with effect from Jan. 28, 2011.
- Mr P.G. Kohad, Assistant, has been promoted as Assistant Administrative Officer with effect from Feb. 14, 2011.
- Mr R. Chandra Babu, UDC, has been promoted as Assistant with effect from Feb. 14, 2011.
- Mr B.S.N. Murthy, Mr K. Obulapathi, Mr M.K. Shamshuddin, Mr M.K. Sonkusare Mr K. Shivaiah, and Mr D. Rajagopal Rao have been promoted from T-4 to T-5 with respective retrospective dates.
- Mr K.V. Kumar, Technical Officer (T-6) has been promoted to T(7-8) with effect from July 1, 2009.
- Mrs G. Aneeja, Technical Officer (T-5) has been promoted to T-6 with effect from Dec. 10, 2008.
- Mr C. Julius Samuel, UDC and Mr K.R. Ghanshyam, UDC were promoted as Assistants with effect from March 25, 2011.

NAARM family congratulates them!

Farewell



Dr Ranajit Kumar Samanta, Principal Scientist, superannuated from ICAR service on Oct. 30, 2010. He started his career as Assistant Professor at Bidhan Chandra Krishi Viswavidyalaya (BCKV), Kalyani in 1976. Later, he joined ICAR service and

served as a Scientist at ICAR Research Complex, Shillong for nearly five years. Then, he joined

NAARM as Associate Professor in 1981, and later became Head, Transfer of Technology Systems and Policies unit. He was instrumental in establishing audio visual lab, and in upgrading the video instruction and production lab at the Academy. After serving the Academy for nearly 15 years, Dr Samanta joined National Institute of Agricultural Extension Management (MANAGE) as Director (Extension and Communication) on deputation in 1995. Later, he became Zonal Coordinator for Zonal Coordinating Unit, Bengaluru in 1997. Then, he joined NAARM as Joint Director (Training) in 2003, and brought several changes in organizing and administering the training programmes and contributed his might for the development of the Academy in reaching further heights in his tenure. He played a key role in agricultural extension management along with human communication development and management in organizations where ever he served. Adding another feather in his cap, Dr Samanta became Vice Chancellor of BCKV in 2007 where he was the scholar in 1978. He is eminent and renowned among the agricultural extensionists, and widely known as 'extension guru'. He is an eloquent orator, and also authored as many as 20 books and 166 research papers.



Mr Y. Sankara Rao, Administrative Officer, was superannuated on Jan. 31, 2011. He joined the Academy as junior clerk in 1976, and served the academy for 34 years as senior clerk, assistant, superintendent, and assistant administrative

officer, before superannuating in the post of administrative officer.



Mrs Eeswaramma, Skilled Support Staff, retired voluntarily on Feb. 1, 2011. She joined NAARM in 1988. She worked as casual labourer for 9 years, and then as permanent staff for 22 years at the Academy.

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



राष्ट्रीय कृषि अनुसंधान प्रबंध अकादमी

राजेन्द्रनगर, हैदराबाद-500 407, (आ.प्र.) भारत

National Academy of Agricultural Research Management

Rajendranagar, Hyderabad-500 407, (A.P.) India

Tel : (040) 24015070, 24581357, 24581322 Fax : (040) 24015912

E-mail : naarm.hyd@naarm.ernet.in

<http://www.naarm.ernet.in>