

भा.कृ.अनु.प – नार्म
वार्षिक प्रतिवेदन

ICAR-NAARM
Annual Report
2016-17



Hyderabad - India



ICAR-NAARM

Annual Report 2016-17



भाकृअनुप-राष्ट्रीय कृषि अनुसंधान प्रबंध अकादमी
राजेन्द्रनगर, हैदराबाद-500030, तेलंगाणा, भारत
ICAR-National Academy of Agricultural Research Management
(ISO 9001:2008 Certified)
Rajendranagar, Hyderabad-500030, Telangana, India
<http://www.naarm.org.in>

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निदेशक की कलम से



डॉ. सि.एच. श्रीनिवास राव
निदेशक

मुझे, भाकृअनुप – राष्ट्रीय कृषि अनुसंधान प्रबंध अकादमी (छ।।त्ड) की वर्ष 2016–17 की वार्षिक रिपोर्ट प्रस्तुत करते हुए प्रसन्नता हो रही है। अकादमी द्वारा राष्ट्रीय कृषि अनुसंधान एवं शिक्षा प्रणाली (छ।त्तै) में मानव संसाधन की दक्षता और क्षमताओं को बढ़ाने में एक महत्वपूर्ण भूमिका निभाई जाती है। वर्ष 2016–17 के दौरान अकादमी द्वारा की गई पहलों का फोकस इन प्रयासों को आगे बढ़ाने पर केन्द्रित रहा।

मैं, डॉ. डी. रामा राव एवं डॉ. आर. कल्पना शास्त्री को बधाई देता हूँ जिन्होंने वर्ष 2016–17 के दौरान अकादमी के निदेशक के रूप में अपने नेतृत्व में विभिन्न पहलों को साकार रूप दिया। साथ ही मैं अकादमी के विजन और मिशन को आगे बढ़ाने में दर्शाए गए उत्साह व उमंग के लिए सभी संकाय सदस्यों, स्टाफ एवं छात्रों की सराहना करता हूँ।

जैसा कि हम शीघ्र ही 42वें वर्ष में प्रवेश करने वाले हैं, मैं नार्म परिवार के सभी सदस्यों के लिए सर्वाधिक मंगलमय वर्ष की कामना करता हूँ।

साभार,

सि.एच. श्रीनिवास राव

दिनांक : 10 जुलाई, 2017

स्थान : हैदराबाद

डॉ. सि.एच. श्रीनिवास राव

From the
**DIRECTOR'S
DESK**



Dr. Ch. Srinivasa Rao
Director

I am happy to present the Annual Report of ICAR–NAARM for the year 2016-17. The Academy plays a pivotal role in enhancing the competencies and capabilities of the human resources in the National Agricultural Research and Education System (NARES). The initiatives undertaken by the Academy during 2016-17 focused on catalyzing these efforts.

I congratulate Dr. D. Rama Rao and Dr. R. Kalpana Sastry who spearheaded the various initiatives under their leadership as Directors of this Academy during 2016-17. I also compliment the faculty members, staff and students of this Academy, for their zeal and enthusiasm in pursuing the vision and mission of the Academy.

As we shortly move to the 42nd year, I wish for an even more rewarding year for all the members of the NAARM family.

Best regards,

A handwritten signature in black ink, consisting of a stylized 'S' followed by a horizontal line and a small flourish.

Date: 10 July 2017
Place: Hyderabad

Ch. Srinivasa Rao

प्रस्तावना



डॉ. आर. कल्पना शास्त्री

संयुक्त निदेशक एवं निदेशक (कार्यकारी)
(31 मार्च, 2017 तक)

इस वार्षिक प्रतिवेदन के माध्यम से पिछले वर्ष के दौरान अकादमी द्वारा हासिल की गई उपलब्धियों को आपके साथ साझा करते हुए मुझे प्रसन्नता का अनुभव हो रहा है। अकादमी ने अपनी सेवा के 41वें वर्ष में कदम रखा और अपने हितधारकों की जरूरतों की पूर्ति के लिए वैज्ञानिकों, संकाय सदस्यों, छात्रों तथा अनुसंधान नेतृत्व को कहीं अधिक संवेदी, अनुक्रियाशील एवं उत्तरदायी मानव संसाधन के रूप में विकसित करने के साथ-साथ राष्ट्रीय कृषि अनुसंधान एवं शिक्षा प्रणाली (NARES) के हितधारकों के विकास में उल्लेखनीय योगदान को जारी रखा। यह पिछली उपलब्धियों को बनाये रखने और अपनी प्रतिबद्ध गतिविधियों को जारी रखने का वर्ष था।

रिपोर्टाधीन वर्ष के दौरान, अकादमी में क्षमता निर्माण गतिविधियां अपने शीर्ष स्तर तक पहुंचीं जैसा कि 71 से भी अधिक कस्टमाइज्ड क्षमता निर्माण कार्यक्रमों के माध्यम से 3,706 कर्मिकों को प्रशिक्षण प्रदान किया गया। अकादमी द्वारा नवोन्मेषी युक्तियों को विकसित करने और उन्हें प्रारंभ करने में अपने प्रयासों को जारी रखा गया यथा मैसिव ओपन ऑन-लाइन कोर्स (MOOCs); प्रशिक्षण प्रबंधन सूचना प्रणाली (TMIS) आदि; वार्षिक प्रशिक्षण योजनाएं; प्रौद्योगिकी संवर्धित प्रशिक्षण केन्द्र; कृषि नवोन्मेष के लिए केन्द्र; डाटा विश्लेषण; भाकृअनुप की प्रौद्योगिकियों का प्रदर्शन; जमीनी स्तर पर कृषि नवोन्मेष की स्काउटिंग; तथा कृषि-प्रसार प्रक्रियाओं एवं कृषि उद्यमशीलता को उत्प्रेरित करने के लिए विशिष्ट कार्यक्रमों का विकास करना। संबंधित भारतीय कृषि अनुसंधान परिषद संस्थानों में क्षमता निर्माण पहल के क्रियान्वयन को भाकृअनुप संस्थानों के सभी मानव संसाधन विकास नोडल अधिकारियों के लिए विशेष रूप से डिजाइन किए गए कार्यक्रम को क्रियान्वित करके मजबूती प्रदान की गई। इस कार्यक्रम का उद्देश्य संस्थान ईएफसी की मौजूदा तैयारी के साथ मिलकर अपनी वार्षिक प्रशिक्षण योजनाओं को तैयार करने में मदद करना है। इन सभी युक्तियों का अभिप्राय कृषि अनुसंधान, शिक्षा तथा प्रौद्योगिकी प्रबंधन में राष्ट्रीय कृषि अनुसंधान एवं शिक्षा प्रणाली (NARES) के संस्थानों और निजी जनों की क्षमताओं में संवृद्धि करना है।

अकादमी में अनुसंधान गतिविधियों का फोकस अनेक विशिष्ट एवं विषय आधारित परियोजनाओं पर केन्द्रित था जिनमें अनेक बाह्य वित्तीय सहायता प्राप्त कार्यक्रमों का अनुदान माध्यम भी शामिल था। वर्ष 2016-17 के दौरान आठ बाह्य वित्तीय सहायता

प्राप्त परियोजनाओं और प्रतिस्पर्धी मोड में तीन परामर्शी मोड परियोजनाओं पर कार्य किया गया जिससे जानकारी के विकास, नीतिगत पेपर, तथा राष्ट्रीय कृषि अनुसंधान एवं शिक्षा प्रणाली (NARES) के लिए थिंक टैंक के रूप में अपनी भूमिका को बढ़ाने वाले अपने अनुसंधान प्रयासों में अकादमी की पहचान प्रमाणित होती है। गुणवत्तापूर्ण प्रकाशनों के माध्यम से योगदान करते हुए अकादमी का संकाय एवं परियोजना टीम वैज्ञानिक परिदृश्य में अपनी उल्लेखनीय छाप छोड़ने में सफल रही। गुणवत्ता प्रकाशनों का अकादमी के क्षमता निर्माण कार्यक्रमों में यथार्थ समय वाले मामला अध्ययन के रूप में उल्लेखनीय महत्व है जिससे ज्ञान संस्थान के रूप में अपने हितधारकों तक अकादमी की दृश्यता एवं पहुंच में सुधार आया।

अकादमी के उच्चतर शिक्षा कार्यक्रमों जैसे कि कृषि प्रबंधन में स्नातकोत्तर डिप्लोमा (PGDMA) एवं कृषि में प्रौद्योगिकी प्रबंधन में स्नातकोत्तर डिप्लोमा (PGDTMA) को उत्साहवर्धक मान्यता मिलना जारी रहा जो कि 100 प्रतिशत रोजगार प्राप्ति से प्रमाणित हुआ। रिपोर्टाधीन वर्ष के दौरान जहां PGDMA को AICTE के अंतर्गत मान्यता मिली वहीं चूकझुट्ट को यूजीसी मान्यता प्रदान की गई। शिक्षा प्रौद्योगिकी प्रबंधन पर स्नातकोत्तर डिप्लोमा (PGD-ETM) पर एक नए पाठ्यक्रम की भी डिजाइन विकसित की गई और निकट भविष्य में इसे प्रारंभ करने की अपेक्षा की जाती है।

गांव अंगीकरण और मेरा गांव – मेरा गौरव कार्यक्रमों जैसी अपनी आउटरिच गतिविधियों के माध्यम से अकादमी द्वारा प्रसार कार्यप्रणालियों को लागू करके कृषि ग्रामीण जीवन को रूपांतरित करने की दिशा में उल्लेखनीय कार्य किया गया। अंगीकृत गांवों में प्रैक्टिकल के साथ खेत अनुभव प्रशिक्षण पर एक कस्टम डिजाइन माड्यूल को फोर्कास प्रशिक्षण में एक अनिवार्य माड्यूल बनाया गया है और 92 से भी अधिक युवा वैज्ञानिक प्रोबेशनर्स को अकादमी द्वारा अंगीकृत किए गए दो गांवों में कार्य करने का अवसर मिला है। अनुसंधान कार्यक्रमों को तैयार करते समय कहीं अधिक वास्तविक दृष्टिकोण प्रदान करने हेतु एफईटी माड्यूल में गांव कार्रवाई विकास योजना (VADP) को शामिल करने की एक अन्य नई पहल की गई जिसे जमीनी स्तर पर अपनाया जा सकता है।

रिपोर्टाधीन अवधि में भाकृअनुप – राष्ट्रीय कृषि अनुसंधान प्रबंध अकादमी (NAARM) अनेक प्रमुख घटनाओं का साक्षी बना जिसमें शामिल है : माननीय केन्द्रीय कृषि एवं किसान कल्याण मंत्री श्री राधा मोहन सिंह का दौरा; भाकृअनुप क्षेत्रीय समिति बैठक जोन II की मेजबानी; संसदीय समिति का सफल दौरा; भाकृअनुप प्रायोजित फार्मर्स फर्स्ट परियोजना का शुभारंभ, आदि। बुनियादी पाठ्यक्रम के प्रतिभागियों के वार्षिक पुनःमिलन (Reunion) की एक नई पहल की गई जो कि अकादमी के वार्षिक कार्यक्रमों का हिस्सा बन चुकी है। वर्ष 2016-17 भी 38वें एवं 39वें फोर्कास बैच की रजत जयंती समारोह का साक्षी बना जिसमें 50 से भी अधिक वैज्ञानिकों ने भाग लिया। इसके अलावा, अकादमी के एक प्रमुख हितधारक के रूप में भाकृअनुप – राष्ट्रीय कृषि अनुसंधान प्रबंध

अकादमी (NAARM) एल्मुनी की भूमिका को स्वीकार करते हुए अकादमी के स्थापना दिवस समारोह के भाग के रूप में एक एल्मुनी बैठक का आयोजन किया गया। यह आने वाले वर्षों में पुनः मिलन कार्यक्रमों के साथ-साथ एक वार्षिक कार्यक्रम होगा।

मुझे यह बताते हुए गर्व का अनुभव हो रहा है कि अकादमी की स्टेट ऑफ दि आर्ट आधारभूत सुविधाएं यथा पुस्तकालय, TELAgE प्रयोगशाला, वीडियो लैब, जीआईएस लैब, ARIS लैब, मल्टीमीडिया लैब, कृषि नवोन्मेष के लिए केन्द्र तथा अतिथि गृहों के रूप में लॉजीस्टिक सेवाएं, सम्मेलन हॉल, एवं प्रशिक्षण सुविधाएं, खेलकूद परिसर आदि की एक विशिष्ट पहचान स्थापित है। अकादमी की सुविधाओं को लगातार समुन्नत किया जाता है और इन्हें उच्च स्तर का बनाये रखने के लिए प्रयास किए जाते हैं। अकादमी के वृक्षों से सराबोर हरे-भरे वातावरण के साथ-साथ पेशेवर माहौल ने भारतीय कृषि अनुसंधान परिषद के अनेक पड़ोसी संस्थानों और हैदराबाद के आसपास स्थित अन्य विभागों को इन सुविधाओं का उपयोग करने के प्रति आकर्षित किया है।

अकादमी द्वारा भारतीय कृषि अनुसंधान परिषद में बेहतर शासनी प्रणाली प्रदान करने में अनेक नई पहलों का अनुपालन करना जारी रखा गया। भारतीय कृषि अनुसंधान परिषद की नई स्थानान्तरण एवं तैनाती नीति में शामिल पारदर्शिता एवं प्रतिष्ठापित उद्देश्यपरकता को वैज्ञानिकों-प्रशिक्षुओं के बुनियादी पाठ्यक्रम हेतु हालिया विकसित ऑन-लाइन तैनाती प्रणाली का अंगीकरण करके लागू किया गया। इसे भारतीय कृषि अनुसंधान परिषद के कार्मिक प्रभाग के साथ मिलकर 105वें फोकार्स वैज्ञानिक – प्रोबेशनर्स की तैनाती के दौरान सफलतापूर्वक लागू किया गया।

भारतीय कृषि अनुसंधान प्रणाली के विभिन्न स्तरों से प्राप्त सुझावों को शामिल करते हुए वार्षिक प्रदर्शन आकलन रिपोर्ट (APAR) के अंतिम संशोधन को पूरा किया गया और उसे अनुमोदन व क्रियान्वयन के लिए प्रस्तुत किया गया। M & E प्रणालियों को सुचारू रूप देने के प्रशासन के प्रयासों के फलस्वरूप FMS/MIS प्लेटफार्म के अंतर्गत सभी रिकॉर्ड को अद्यतन बनाने में मदद मिली। इस वर्ष संस्थान में लगभग 20 नए वैज्ञानिकों, संभागाध्यक्ष तथा 12वीं योजना के दौरान सृजित पदों पर अन्य कार्मिकों की नियुक्ति हुई। यह बताते हुए संतोष का अनुभव हो रहा है कि अपनी स्थापना के बाद से अकादमी में अब तक के सबसे अधिक 36 वैज्ञानिकों की तैनाती है। यह अपेक्षा की जाती है कि शेष पदों पर भी तैनाती शीघ्र ही कर ली जाएगी। पुनः वर्ष 2016-17 के दौरान विभिन्न पदानुक्रम स्तरों व संवर्गों के लगभग 20 प्रशासनिक एवं तकनीकी कार्मिकों को सफलतापूर्वक अगले उच्चतर पदों में पदोन्नत किया गया और लगभग सभी लम्बित पदोन्नति एवं एमएसीपी के मामलों को निपटाया गया। मुझे यह बताते हुए प्रसन्नता का अनुभव हो रहा है कि पेंशन एथारिटी इकाई जिसे अप्रैल, 2016 के दौरान भाकृअनुप – राष्ट्रीय कृषि अनुसंधान प्रबंध अकादमी (NAARM) में स्थानान्तरित किया गया था, ने पूरी तरह से कार्य करना प्रारंभ कर दिया है और इससे लगभग 700 भाकृअनुप पेंशनभोगियों को लाभ पहुंचाया जा रहा है।

अकादमी को पूरे वर्ष परिषद से बाधारहित एवं सकारात्मक सहयोग प्राप्त हुआ। उभरती चुनौतियों का सफलतापूर्वक सामना करने में अकादमी को कहीं अधिक जीवंत एवं उत्तरदायी बनाने में प्रचुर सहयोग एवं निरन्तर प्रोत्साहन एवं मार्गदर्शन देने के लिए हम, डॉ. त्रिलोचन महापात्र, सचिव (डेयर) एवं महानिदेशक (भाकृअनुप); तथा श्री छबिलेन्द्र राऊल, अपर सचिव (डेयर) एवं सचिव (भाकृअनुप) के प्रति अपना हार्दिक आभार व्यक्त करते हैं। साथ ही हम अकादमी की गतिविधियों को आगे बढ़ाने में अपना पूर्ण सहयोग देने के लिए डॉ. एन.एस. राठौर, उप महानिदेशक (शिक्षा), भाकृअनुप के आभारी हैं। 30 सितम्बर, 2016 तक निदेशक के रूप में अपने कार्यकाल के दौरान अकादमी की गतिविधियों को प्रेरक नेतृत्व प्रदान करने के लिए हम डॉ. डी. रामा राव के हार्दिक आभारी हैं।

इस वार्षिक प्रतिवेदन को मूर्तरूप प्रदान करने में किए गए अथक प्रयासों के लिए मैं, सम्पादन मण्डल के सदस्यों डॉ. रंजीत कुमार, डी. थम्मी राजू एवं डॉ. पी. कृष्णन की सराहना करती हूँ। इस संबंध में सभी संभागों व अनुभागों के अध्यक्षों द्वारा दिया गया सहयोग सराहनीय रहा।

मुझे आशा एवं विश्वास है कि इस वार्षिक प्रतिवेदन में प्रस्तुत सूचना हितधारकों के लिए उपयोगी होगी। आने वाले वर्षों में कृषि विकास की दिशा में भारतीय कृषि अनुसंधान परिषद के मिशन को हासिल करने में अकादमी द्वारा एक चुनौतीपूर्ण भावी भूमिका निभाने के संबंध में मैं पूरी तरह आशान्वित हूँ।

आर. कल्पना शास्त्री

दिनांक : 10 जुलाई, 2017

स्थान : हैदराबाद

डॉ. आर. कल्पना शास्त्री

PREFACE



Dr. R. Kalpana Sastry

Joint Director and
Director (Acting) till 31 Mar 2017

It is my privilege to share the achievements of the Academy over the last year through this Annual Report. The Academy entered its 41st year of service and continued to contribute significantly to development of stakeholders of the National Agricultural Research and Education System (NARES) including scientists, faculty, students and research leaders towards moulding them sensitive, responsive and responsible human resources catering to the needs of their stakeholders. It was a year of sustenance of the previous achievements and a continuum of its committed activities.

During the year, capacity building activities at the Academy rose to a record in terms of reaching to as many as 3706 personnel through more than 71 customized capacity building programs. The Academy continued its pursuit in developing and introducing innovative approaches viz. Massive Open Online Courses (MOOCs), Training Management Information System (TMIS), etc., Annual Training Plans, Technology Enhanced Learning Centre, Centre for Agriculture Innovation, Data Analytics, showcasing of ICAR technologies, scouting of agri-innovations at the grass-roots level and developing specific programs for catalyzing agri-extension processes and agri-entrepreneurship. Implementation of capacity building initiatives at respective ICAR Institutes were further strengthened through the execution of a specially designed program for all HRD Nodal Officers of ICAR institutes. The program helped to prepare their annual training plans in tandem with the ongoing preparations of Institute EFC. All these approaches sought to enhance the capacities of individuals and institutions of National Agricultural Research and Education System (NARES) in agricultural research, education and technology management.

The focus of research activities in the Academy was on undertaking specific and theme-based projects including through the grant of several external funded projects. As many as eight externally-funded projects and three consultancy mode projects, on a competitive mode, were undertaken during 2016-17, which testify the recognition of the Academy in its research pursuits leading to development of knowledge, policy papers, and its role as a think-tank for the NARES. The faculty

and project teams were also successful in the scientific arena with contributions through quality publications, which are of significant value as real-time case studies in its capacity building programs and also enrich its visibility and reach with its stakeholders as a knowledge institute.

The Academy's higher education programs such as Post Graduate Diploma in Management Agriculture (PGDMA) and Post Graduate Diploma in Technology Management in Agriculture (PGDTMA) continued to receive overwhelming recognition-proven by 100 per cent placement. While the PGDMA got recognition under the AICTE, the PGDTMA was awarded the UGC recognition during the year of report. A new course on Post Graduate Diploma in Educational Technology Management (PGD-ETM) was also designed and is expected to be launched in the near future.

Through its outreach activities such as village adoption and *Mera Goan Mera Gaurav* programs, the Academy transformed agricultural rural life through implementation of extension methodologies. A custom-designed module on field experience training with practicals in the adopted villages forms a mandatory module in the FOCARS training and as many as 92 young scientist-probationers got an opportunity to work in the two adopted villages of the Academy. Another new initiative was the introduction of Village Action Development Plan (VADP) in the Field Experience Training (FET) module, a component of FOCARS, to give a more realistic approach while formulating research programs, which can be adaptable at the ground level.

NAARM was a platform for several major events including visit of Hon'ble Minister for Agriculture and Farmers' Welfare Sh. Radha Mohan Singh; the hosting of ICAR Regional Committee Meeting Zone II; successful visit of Parliamentary Committee; launch of ICAR sponsored Farmers' First Project and so on. A new initiative of Annual Reunion of the participants of Foundation Courses was undertaken, which has been integrated in the Academy's yearly programs. The year 2016-17 also witnessed the silver jubilee celebrations of 38th and 39th FOCARS batches, in which as many as 50 scientists participated. Additionally, recognizing the role of NAARM Alumni Association as an important stakeholder of the Academy, an Alumni Meet was organized as part of the Foundation Day celebrations of the Academy. This would be an annual feature, along with the reunion programs in the years to come.

It is a matter of pride to report that the Academy's state-of-the art infrastructure including Library, TELAgE Lab, Video Lab, GIS Lab, ARIS Lab, Multimedia Lab, Centre for Agri Innovation, and logistics in form of guest houses, conference halls, and training facilities, sports complex are well recognized and much sought after. The facilities of the Academy are continuously upgraded and efforts taken to maintain and sustain them. The professional ambience along with the sylvan and green environment of the Academy has positioned these facilities for use by several other neighbouring institutions of ICAR and other Government departments in and around Hyderabad.

The Academy continued to comply with the new initiatives in providing better governance system in the ICAR. The transparency and objectivity enshrined in the new transfer and posting policy of ICAR, was put into practice through the adoption of the recently developed online posting system during the posting of 105th FOCARS scientist-probationers, along with the Personnel Division of ICAR.

The final revision of the Annual Performance Assessment Report (APAR) was completed after incorporating suggestions received across various levels of ICAR system and submitted for approval and its execution. The efforts of the administration to streamline the M&E systems have resulted in updating of all records under FMS/MIS platform. The year also saw the appointments of about 10 new scientists, Heads of Divisions and other functionaries against the posts created during 12th Plan. It is satisfying to report that faculty strength of the Academy has reached an all-time high with 36 scientists in place, since its inception. It is expected that process for filling the remaining positions will also be completed shortly. Further, about 20 administration and technical personnel across all hierarchical levels and cadres were successfully promoted to higher positions and almost all pending promotions and MACP were completed during 2016-17. I am also happy to report that the Pension Authority Unit, which was shifted to NAARM during April, 2016 has become fully functional and is catering to about 700 ICAR pensioners.

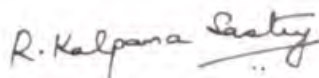
The Academy received unstinted and positive support from the Council all through the year. We would like express our sincere thanks and gratitude to Dr. T. Mohapatra, Secretary (DARE) and Director General (ICAR), and Shri. Chhabilendra Roul, Additional Secretary (DARE) & Secretary (ICAR) for extending profuse support, continuous encouragement and guidance to make the Academy more vibrant and responsive to meet the emerging challenges. We are also thankful to Dr. N.S. Rathore, DDG (Edn) for extending whole-hearted support for pursuing the Academy's activities. Our sincere gratitude is due to Dr. D. Rama Rao, for spearheading the activities of the Academy during his tenure as Director, till 30 September, 2016.

I genuinely appreciate the earnest efforts made by the editorial team comprising of Drs. Ranjit Kumar, D. Thammi Raju and P. Krishnan in bringing out this Annual Report. The support given by all Heads of Divisions/Sections, Faculty and Staff members in this regard is gratefully acknowledged.

I hope and trust that the information given in this Annual Report will be useful for the stakeholders. I look forward for the Academy to have a challenging and prominent role in the years to come towards achieving the ICAR's mission for agricultural development.

Date: 10 July 2017

Place: Hyderabad



(R. Kalpana Sastry)

कार्यकारी सारांश

परिवर्तनशील वैश्विक चुनौतियों का सामना करने में राष्ट्रीय कृषि अनुसंधान एवं शिक्षा प्रणाली (NARES) को गतिशीलता प्रदान करने के कार्य में अकादमी उत्कृष्टता के पांचवें दशक की देहरी पर है। अकादमी की सुदृढ़ता प्रशिक्षण, अनुसंधान तथा शिक्षा और परामर्शी गतिविधियों के अनूठे मिश्रण में निहित है जो कि एक-दूसरे से परस्पर जुड़ी हुई हैं। अकादमी द्वारा नेतृत्व क्षमता एवं शासन प्रणाली में सुधार लाने; नवोन्मेष एवं टिकाऊ विकास हेतु विज्ञान व प्रौद्योगिकी को गतिशीलता प्रदान करने; नवोन्मेष एवं शासन प्रणाली के प्रोत्साहन हेतु सूचना एवं संचार का प्रबंधन करने; बाजार चालित वातावरण में प्रसार प्रणाली का निर्माण करने; संकाय उत्कृष्टता एवं शिक्षण प्रदर्शन में सुधार करने और उच्चतर सम्यक प्रगति के लिए कृषि व्यवसाय प्रणाली को उत्प्रेरित करने हेतु राष्ट्रीय कृषि अनुसंधान एवं शिक्षा प्रणाली (NARES) की क्षमताओं को मजबूती प्रदान करने की रणनीतियां अपनाई जाती हैं। अकादमी द्वारा लगातार स्वयं को नयापन प्रदान किया जाता है और भारतीय कृषि अनुसंधान परिषद (ICAR) तथा राष्ट्रीय कृषि अनुसंधान एवं शिक्षा प्रणाली (NARES) के संस्थानों की बदल रही जरूरतों के अनुसार स्वयं को तेजी से अनुकूल बनाया जाता है।

भाकृअनुप – राष्ट्रीय कृषि अनुसंधान प्रबंध अकादमी (NAARM) द्वारा भारतीय कृषि अनुसंधान परिषद में तथा राष्ट्रीय कृषि अनुसंधान एवं शिक्षा प्रणाली (NARES) के अन्य संस्थानों में वैज्ञानिकों एवं अनुसंधान लीडरों और कृषि व्यवसाय प्रबंधकों की नई पीढ़ी के विकास में अपना उल्लेखनीय योगदान दिया गया है। साथ ही अकादमी द्वारा राष्ट्रीय कृषि अनुसंधान एवं शिक्षा प्रणाली (NARES) में क्षमताओं को बढ़ाने हेतु अनेक नई नीतियों, संस्थागत क्रियाविधियों और पहल की सुविधा प्रदान की गई जैसे कि अनुसंधान, शिक्षा तथा प्रसार प्रबंधन, मानव संसाधन प्रबंधन, सूचना प्रबंधन, बौद्धिक सम्पदा प्रबंधन, प्रौद्योगिकी प्रबंधन, शिक्षा प्रौद्योगिकी एवं ई-लर्निंग, तथा अनेक अन्य क्षेत्र जिनका विकास के लिए कृषि अनुसंधान पर प्रभाव पड़ता है।

भावी मांग को पूरा करने और शेष विश्व के साथ गति बनाये रखने के लिए प्रशिक्षण, मानव प्रगति का एक प्रमुख संघटक रहा है। वर्ष 2016–17 के दौरान अकादमी द्वारा 60 क्षमता विकास कार्यक्रम आयोजित किए गए जिनसे राष्ट्रीय कृषि अनुसंधान एवं शिक्षा प्रणाली (NARES) के कुल 2,798 प्रोफेशनल लाभान्वित हुए। इन कार्यक्रमों में शामिल थे : अंतर्राष्ट्रीय कार्यक्रम; कृषि अनुसंधान प्रणाली (ARS) प्रोबेशनर्स और कृषि विश्वविद्यालयों (AUs) के नव-नियुक्त शिक्षकों तथा भारतीय कृषि अनुसंधान परिषद के प्रशासनिक अधिकारियों (AOs) व वित्त व लेखा अधिकारियों (F&AOs)

के लिए बुनियादी पाठ्यक्रम; नेतृत्व विकास; प्रबंधन विकास; पुनश्चर्या पाठ्यक्रम; कार्यशालाएं; ऑफ-कैम्पस कार्यक्रम और ई-लर्निंग पाठ्यक्रम।

बांग्ला देश कृषि विश्वविद्यालय के पांच अधिकारियों के लिए बौद्धिक सम्पदा एवं प्रौद्योगिकी प्रबंधन पर एक अंतर्राष्ट्रीय कार्यक्रम आयोजित किया गया। राष्ट्रीय कृषि अनुसंधान एवं शिक्षा प्रणाली (NARES) के प्रवेश स्तरीय संकाय और अधिकारियों के लिए कुल चार बुनियादी पाठ्यक्रम आयोजित किए गए। इनमें शामिल हैं :- (i) 92 एआरएस वैज्ञानिक प्रोबेशनर्स के लिए कृषि अनुसंधान सेवा हेतु दो बुनियादी पाठ्यक्रम (फोकर्स); (ii) कृषि विश्वविद्यालयों के संकाय के लिए एक बुनियादी पाठ्यक्रम (FOCFAU) जिसमें 57 प्रवेश स्तरीय शिक्षकों ने भाग लिया; एवं (iii) भारतीय कृषि अनुसंधान परिषद के 32 नव-नियुक्त प्रशासनिक अधिकारियों/वित्त व लेखा अधिकारियों के लिए एक बुनियादी पाठ्यक्रम। रिपोर्टाधीन अवधि के दौरान, भारतीय कृषि अनुसंधान परिषद के 25 नव-नियुक्त निदेशकों/सहायक महानिदेशकों के लिए भी नेतृत्व विकास पर दो कार्यकारी विकास कार्यक्रम चलाए गए। प्रशिक्षण नीति के भाग के तौर पर, भाकृअनुप संस्थानों के 97 मानव संसाधन विकास नोडल अधिकारियों और भाकृअनुप के 128 तकनीकी अधिकारियों के लिए दक्षता संवर्धन प्रशिक्षण कार्यक्रम आयोजित किए गए।

अकादमी को ई-कोर्स की सुविधा प्रदान करने के संबंध में उल्लेखनीय सफलता मिली है। प्रभावी शिक्षण के लिए दक्षता संवर्धन पर दूसरे मैसिव ओपन ऑन-लाइन कोर्स (MOOC) को राष्ट्रीय कृषि अनुसंधान एवं शिक्षा प्रणाली (NARES) से रिकॉर्ड 1006 सदस्यों का पंजीकरण हासिल हुआ।

अकादमी द्वारा पूर्णतया आवासीय प्रबंधन (कृषि) में दो वर्षीय स्नातकोत्तर डिप्लोमा – पीजीडीएमए की सुविधा प्रदान की जाती है। वार्षिक रिपोर्ट अवधि के दौरान, 22 छात्रों को शिक्षा पूरी होने के उपरान्त अनेक बहुराष्ट्रीय कृषि उद्योगों में सफलतापूर्वक रोजगार मिला। कुल 31 छात्रों को पीजीडीएमए (2016-18) के आठवें बैच के लिए पंजीकृत किया गया है। रिपोर्टाधीन अवधि के दौरान, विभिन्न संगठनों द्वारा आयोजित शैक्षणिक प्रतियोगिताओं में अनेक छात्रों ने राष्ट्रीय स्तर पर पुरस्कार जीते।


क्षमता निर्माण कार्यक्रमों के साथ-साथ, अनुसंधान भी अकादमी की प्रमुख गतिविधियों में से एक है। रिपोर्टाधीन अवधि के दौरान, 20 परियोजनाएं प्रचालन में थीं जिनमें 9 परियोजनाएं संस्थान वित्त पोषित और 8 परियोजनाएं बाह्य वित्त पोषित, भाकृअनुप तथा जैव प्रौद्योगिकी विभाग द्वारा प्रायोजित थीं। इसके अलावा, तीन परामर्शी परियोजनाएं यथा तम्बाकू बोर्ड, RGMVP – बरेली और RIS तथा MoEFCC प्रत्येक द्वारा एक-एक परियोजना प्रायोजित की गई थी। अकादमी द्वारा सहकर्मियों द्वारा समीक्षित कुल 106 पेपर, लेख तथा बुलेटिन प्रकाशित किए गए। वैज्ञानिकों की संख्या के संदर्भ में प्रकाशनों की संख्या का अनुपात 1.56 था। पिछले वर्ष की तुलना में 57 प्रतिशत अधिक प्रकाशन थे। अकादमी के संकाय द्वारा प्रकाशित 50 प्रतिशत से भी अधिक अनुसंधान पेपर अन्य संस्थानों के वैज्ञानिकों के साथ मिलकर प्रकाशित कराए गए।

अकादमी द्वारा भारत सरकार की विभिन्न पहलों को साकार करने की दिशा में अनेक प्रयास किए गए और बहु आयामीय रणनीतियों को अपनाया गया।

- भारत सरकार के निर्देशों के अनुसरण में, अकादमी द्वारा 'डिजिटल भारत सप्ताह', 'राजभाषा पखवाड़ा (हिन्दी पखवाड़ा)', 'सतर्कता सप्ताह', 'राष्ट्रीय विज्ञान दिवस', 'अंतर्राष्ट्रीय योग दिवस', 'सद्भावना दिवस', 'राष्ट्रीय एकता दिवस', 'संविधान दिवस' एवं 'कृषि शिक्षा दिवस' आदि मनाया गया।
- दिनांक 5 दिसम्बर, 2016 को विश्व मृदा दिवस का आयोजन अकादमी द्वारा अंगीकृत किए गए गांवों यथा तलासिंगारम एवं एस. लिंगोटम में मनाया गया जहां किसानों को प्राकृतिक प्रणाली के एक प्रमुख संघटक के रूप में मृदा का महत्व बताते हुए उन्हें मृदा स्वास्थ्य आधारित परामर्श सेवाएं प्रदान की गईं।
- स्टार्ट-अप इंडिया अभियान पहल के भाग के रूप में पूर्वोत्तर क्षेत्र सहित देश के विभिन्न विश्वविद्यालयों में अनेक उद्यमशीलता विकास/आधारीय कैम्प एवं जागरूकता कार्यशालाओं का आयोजन किया गया। इच्छुक कृषि उद्यमियों को अकादमी में कृषि नवोन्मेष केन्द्र के तत्वावधान के अंतर्गत इनक्यूबेशन सहयोग प्रदान किया गया।
- अकादमी के सभी हितधारकों को शामिल करते हुए पूरी लग्न एवं उत्साह के साथ स्वच्छता गतिविधियां चलाई गईं। स्टाफ, पीजीडीएमए और निकटवर्ती स्कूलों के छात्रों के लिए तथा साथ ही क्षमता निर्माण कार्यक्रमों के प्रतिभागियों के लिए अनेक प्रतियोगिताएं आयोजित की गईं ताकि सभी में 'स्वच्छता' संदेश का प्रसार हो सके।
- सरकार की ई-मार्केटप्लेस (GeM) की पूर्ण क्षमता को महसूस करते हुए अकादमी को ई-मार्केटप्लेस (GeM) के साथ पंजीकृत किया गया और अपनी नियमित खरीद में इसके उपयोग को बढ़ाने के लिए जरूरी कदम उठाए गए।
- भाकृअनुप – राष्ट्रीय कृषि अनुसंधान प्रबंध अकादमी (NAARM) द्वारा अकादमी में नकदरहित/डिजिटल लेन-देन को बढ़ावा देने के लिए अनेक कदम उठाए गए। अकादमी के अतिथि गृहों में स्पाइप मशीनें लगाई गईं। नकदरहित लेन-देन को लागू करने में अग्रणी भूमिका निभाने के लिए अकादमी को भारतीय कृषि अनुसंधान परिषद का दो लाख रुपये का नकद पुरस्कार मिला।

अकादमी के विजन 2050 के अनुसरण में अपने अग्रणी कार्यक्रमों का पुनर्गठन करने के भाग के तौर पर, पहला 'फोकार्स की पुनः संरचना' एवं दूसरा 'वर्ष 2030 के लिए कृषि अनुसंधान एवं शिक्षा प्रबंधन रणनीतियां' विषयों पर दो ब्रेनस्टॉर्मिंग सत्र आयोजित किए गए और साथ ही इन्हें अकादमी के चालू कार्यक्रमों में भी आपस में जोड़ा गया।

EXECUTIVE SUMMARY

 The Academy is on the threshold of fifth decade of excellence of gearing up to the National Agricultural Research and Education System (NARES) to meet ever changing global challenges. The strength of the Academy lies in its unique blend of training, research and education and consultation activities that intricately reinforces each other. It adopts strategies to strengthen capacities of NARES for enhancing leadership and governance; mobilizing science and technology for innovation and sustainable development; managing information and communication for promotion of innovation and governance; building extension system in a market-driven environment; improving faculty excellence and teaching performance and catalysing agribusiness system for higher inclusive growth. The Academy continuously renews itself and adapts quickly to the changing needs of ICAR and institutions of NARES.

The Academy has contributed significantly to the development of a new generation of scientists and research leaders and agribusiness managers in the ICAR, and the other institutions of NARES. It has also facilitated several new policies, institutional mechanisms, and initiatives leading to enhanced capacities in NARES for research, education and extension management, human resource management, information management, intellectual property management, technology management, educational technology and e-learning, and in several other areas that impact agricultural research for development.

Training is an important component of human growth to meet the future demands and keeps pace with the rest of the world. During 2016-17, the Academy organized 71 capacity development programs through which 3,706 professionals of NARES were benefited. These programs included international training program, foundation courses for ARS probationers and newly recruited faculty of Agricultural Universities (AUs) and

directly recruited Administrative Officers (AOs) and Finance and Accounts Officers of ICAR, leadership development, management development, refresher courses, workshops, off-campus programs and online courses.

One international program on IP & Technology Management was organized for five officials of Bangladesh Agricultural University. Four foundation courses have been conducted for entry level faculty and officers of NARES. This includes (i) two Foundation Courses for Agricultural Research Service (FOCARS) for 92 ARS scientist-probationers; (ii) one Foundation Course for faculty of Agricultural Universities (FOCFAU), in which 57 entry level faculty participated and (iii) a Foundation Course for 32 directly recruited AOs/FAOs of ICAR. During this period, two Executive Development Programs on Leadership Development were also conducted for the 25 newly recruited Directors/ADGs of ICAR. As part of training policy, competency enhancement training programs were organized for 97 HRD nodal offices of ICAR institutes and 128 technical officers of ICAR.

The Academy has achieved a milestone in terms of offering online courses. The 2nd Massive Open Online Course (MOOC) on *Competency Enhancement for Effective Teaching* received a record registration of 1003 members from NARES.

NAARM also offers a fully residential two year Post Graduate Diploma in Management (Agriculture)–PGDMA. During the annual report period, 22 students have been successfully placed in several multinational agri-industries after completing their graduation. 30 students have been enrolled for the eighth batch of PGDMA (2016-18). During the period of report, several students won awards at national level case study competitions organized by various organizations.

Apart from capacity building programs, the research is also one of the core activities of the Academy. During the period, 20 projects were in operation, which include 09 institute projects, 08 externally funded projects, sponsored by ICAR and DBT. In addition, there were 3 consultancy projects—one each by Tobacco Board, RGMVP- Bareilly and RIS and MoEFCC. The Academy published 106 peer reviewed papers, articles, bulletins etc. The number of publications to scientist's ratio was 1.56 and the publications were 57% more than that of the last year. Over 50% of the research papers published by the Faculty of the Academy were in collaboration with scientists from other institutions.

The Academy has taken many strides and adopted multi-pronged strategies to internalize the various Government of India initiatives.

- In cognizance of Government of India directions, the Academy celebrated 'Digital India Week', 'Official Language Fortnight (*Hindi Pakhwada*)', 'Vigilance Week', 'National Science Day', 'International Yoga Day', 'Sadbhawana Divas', 'Rashtriya Ekta Divas', 'Constitution Day', 'Agricultural Education Day', etc.
- The World Soil Day was marked on 5th Dec 2016 in the adopted villages of academy viz, Talasingaram and S. Lingotam, where soil health based advisory services were provided to the farmers, highlighting the importance of soil as a critical component of the natural system.
- As part of start-up India campaign initiative, several entrepreneurship development/boot camps and sensitization workshops have been organized at various universities across the country including north-eastern region. The aspiring agripreneurs have been extended incubation support under the aegis of Centre for Agri-Innovation at the Academy.
- The Swachhta activities were undertaken in letter and spirit involving all the stakeholders of the Academy. Various competitions were organized for staff, students of PGDMA and nearby schools and participants of capacity building programs so as to spread the message of 'Swachhta' among all.
- In order to realize the full potential of Government e-Marketplace (GeM), the Academy got registered with GeM and has taken necessary steps to expand its use in its routine procurement.
- NAARM has taken various steps for promoting cashless/digital transactions in the Academy. Swipe machines have been installed in its guesthouses. The Academy got the ICAR's Cash Award of two lakhs rupees for taking the lead in implementing cashless transactions.

As part of restructuring its flagship programs and in line of its vision 2050, two brainstorming sessions—one on 'Restructuring of FOCARS' and the other on 'Agricultural research and education management strategies for 2030' were held and the same have been internalized in the ongoing programs of the Academy.



Chapter - 1
NAARM
An Overview



NAARM An Overview

Vision

A global knowledge institution enabling National Agricultural Research and Education System (NARES) adapt to change through continuous innovation.

Mission

To enhance leadership, governance and innovation capacities of National Agricultural Research and Education System (NARES) through capacity strengthening, education, research, consultancy, and policy support.

The ICAR-National Academy of Agricultural Research Management (NAARM) was established by the Indian Council of Agricultural Research in 1976 at Hyderabad. The major mandate of the Academy is to build capacity in agricultural research, education and extension education systems, and provide policy advocacy for the National Agricultural Research and Education System (NARES). To fulfil these mandates, Academy organizes various capacity building programs for researchers, academicians, extension personnel, scholars, and other stakeholders in NARES. The Academy strives to enhance individual and institutional capacity for innovation in NARES. Considering the strategic importance of agricultural research in food security and economic growth of the country, leadership, governance and innovations are emerging as prerequisite for the transformation of NARES into a more pluralistic innovation system. Keeping this in mind, the Academy has developed its vision, mission and mandate.

1.2. Organization and Management

In line with the vision, mission and mandate, the Academy has been organized and managed into six divisions.

1. Agribusiness Management (ABM)
2. Education Systems Management (ESM)
3. Extension Systems Management (XSM)
4. Human Resources Management (HRM)
5. Information and Communication Management (ICM)
6. Research Systems Management (RSM)

Mandate

- Enhance individual and institutional competencies in managing innovation through capacity development, research and policy advocacy.
- Serve as a think tank for National Agricultural Research and Education System and facilitate strategic management of human capital.

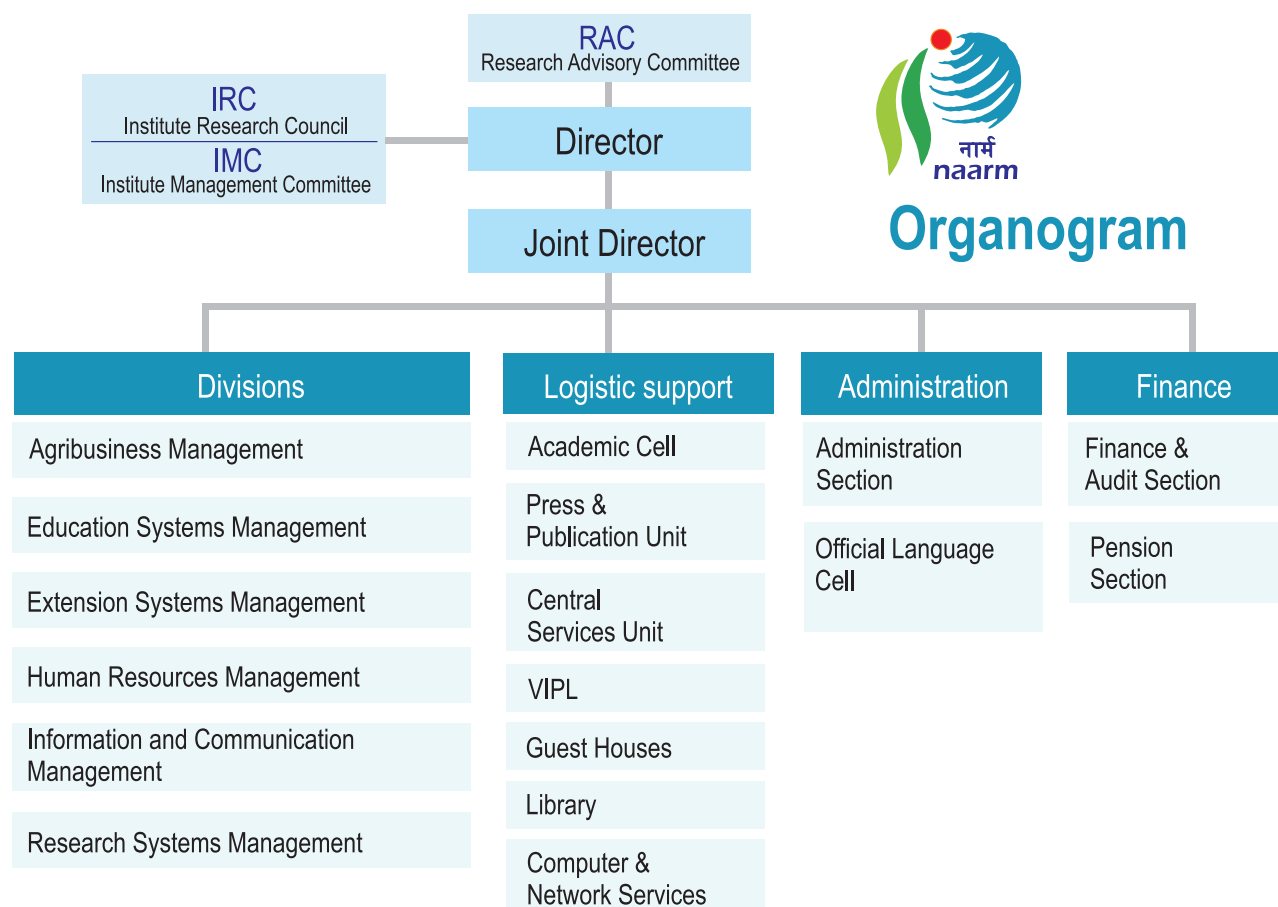


Fig. 1.1 Organogram of the Academy

1.2.1. Research Advisory Committee

a) The composition of Research Advisory Committee (RAC), NAARM for 2013–2016 is given in Table 1.1.

Table 1.1. Research Advisory Committee of the Academy till 19 Dec 2016

Dr. Mruthyunjaya Former National Director, NAIP, Bangalore	Chairman	Dr. A S Rao President, Indian Innovators Association, New Delhi	Member
Dr. K Sudha Rao Ex. Director and Member Secretary, Karnataka Knowledge Commission, Bangalore	Member	Major General Dr. R Siva Kumar (Retd.) GC Manikantha Estate, Malkajgiri, Hyderabad,	Member
Dr. Talam V Rao Chairman, TVRLS and Adjunct Professor, IIM Ahmedabad	Member	Dr. D Rama Rao Director, ICAR-NAARM, Hyderabad	Member
Dr. M B Chetti Assistant Director General (HRD), Education Division, ICAR, New Delhi	Member	Dr. R Kalpana Sastry Joint Director, ICAR-NAARM, Hyderabad	Member Secretary

- b) The composition of Research Advisory Committee (RAC), NAARM for 2016–2019 is given in Table 1.2.

Table 1.2. Research advisory committee of the academy w.e.f. 20th Dec 2016

Prof. Sudhir Kumar Sopory Ex-Vice Chancellor, Jawaharlal Nehru University	Chairman
Dr. K C Bansal Ex- Director, ICAR-NBPGR	Member
Dr. P K Joshi Director for South Asia International Food Policy Research Institute (IFPRI), New Delhi	Member
Dr. C Shambu Prasad Professor, Institute of Rural Management- Anand, Gujarat	Member
Dr. Ishwar Murthy Professor, Decision Science & Information Systems, IIM-Bangalore	Member
Dr. R K Samanta Former Director, ICAR-NAARM, Hyderabad	Member
Director ICAR-NAARM, Hyderabad	Member
DDG (Agri. Education) ICAR, New Delhi	Member
Shri. Venkateshwarlu Vasanthapu Rajendranagar, Hyderabad	Member
Shri. M Dharma Rao Ex- MLA, Hastinapur Colony, Hanumakonda Dist, Telangana	Member
Dr. S K Soam Head, ICM Division, ICAR-NAARM, Hyderabad	Member Secretary

1.2.2. Institute Management Committee

The following officials were nominated as the members of the Institute Management Committee of NAARM for a period of 3 years with effect from 1st September, 2016.

Table 1.3. Institute Management Committee

Director ICAR-NAARM, Hyderabad	Chairman
Director of Agriculture Department of Agriculture, Government of Telangana	Member
Director of Agriculture Department of Agriculture, Government of Andhra Pradesh	Member
Director of Research PJTSAU, Rajendranagar, Hyderabad	Member
Shri. Venkateshwarlu Vasanthapu BSN Reddy Complex, Rajendranagar, Telangana	Member
Shri. M Dharma Rao Ex- MLA, Hastinapur Colony, Hanumakonda Dist, Telangana	Member
Chief Administrative Officer ICAR-NAARM, Hyderabad	Member Secretary

1.3. Linkages/Networking/ Collaborations

NAARM as an Academy has a strong network with 108 ICAR Research Institutes and 75 Agricultural Universities (AUs), and plays a crucial role through capacity building of these institutions, agribusiness industry, scientists, and academia. Its network spans across various other National as well as International Institutions.

1.3.1. National Institutes/ Organizations

1. All the ICAR institutes, Central and State Agricultural Universities.
2. Krishi Vigyan Kendras (KVKs).
3. Various departments of the Government of India like, the Department of Science and Technology (DST), Department of Biotechnology (DBT), National Science & Technology Entrepreneurship Development Board (NSTEB), BIRAC and NITI (National Institution for Transforming India) Aayog.
4. University of Hyderabad, Osmania University, Jawaharlal Nehru Technological University (JNTU), EEI, and Council of Scientific & Industrial Research (CSIR), Indian Council of Medical Research (ICMR) and Institutions located at Hyderabad.

5. MoEFCC, NBA, PPV&FRA, and State Biodiversity Boards.
6. Management Institutions located at Hyderabad viz. the Administrative Staff College of India (ASCI), Indian School of Business (ISB), National Institute of Agricultural Extension Management (MANAGE), National Institute of Rural Development and Panchayat Raj (NIRD & PR), and Institute of Public Enterprise (IPE); and across the country such as IIM, Ahmedabad, IIM-Lucknow and NIAM.
7. State Departments of Agriculture (Telangana, Andhra Pradesh States).
8. Private Sector Organizations (Agri Input Companies, Service Companies, etc.).
9. Non-Government Organizations (NGOs)
10. Other organizations viz. National Innovation Foundation, FICCI, CIIE, etc.

1.3.2. International Organizations

1. CGIAR Institutions (CIMMYT, ICRISAT, IFPRI, IRRI, etc.)
2. World Bank, FAO other United Nations Organizations.
3. Department for International Development (DFID, UK).
4. SAARC Agricultural Centre (SAC).
5. NARS of South Asian Countries such as Bangladesh Agricultural Research Council (BARC), Nepal Agricultural Research Council (NARC), Pakistan Agricultural Research Council (PARC), and other NARS Institutions in Afghanistan, Sri Lanka and other ASEAN countries.
6. NARS in other African and South East Asian countries such as Kenya, Mali, Tanzania, Nigeria, Malawi, Liberia, and Philippines.
7. Leading Land Grant and State Universities of USA and other Universities in Europe, Australia and other developing and developed countries.

1.4. Infrastructure and Facilities

NAARM is situated at Rajendranagar (17°18'49" N latitude and 78°24'42" E longitude), about 18 km away from the city of Hyderabad. It is established

in a green serene, sylvan and sprawling campus of about 50 ha, and is surrounded by reputed Government Institutions like MANAGE, NIRD & PR and PJTSAU.

The Academy has well-equipped infrastructure with state-of-the-art lecture halls, auditorium, conference halls with modern audio-visual aids enabled with wi-fi. During the reporting year, the newly established Center for Agri-Innovation, Technology Enhanced Learning laboratory, and Computer Laboratories were further strengthened.

There are four Guest Houses viz. Halls of Residence, Scientist Home, Faculty House, and International Guest House with about 400 accommodation capacity. The Sports Stadium at the Academy includes large playground, two indoor Badminton Courts, indoor Table Tennis Room, Yoga Room and Gymnasium for men and women. Outdoor Volleyball, Tennis and Basket Ball Courts are also available. Apart from these facilities, there is a well-equipped Health Centre in the premises, which provides health services to the faculty, staff members, trainees, students and more than 600 pensioners of ICAR. Periodic health camps and Blood Donation Camps are regularly organized. In the year 2016-17, eight multi-specialty health camps and one blood donation camp were organized. Periodical health talks are organized inviting specialist doctors from renowned super-specialty hospitals in the city as a part of awareness campaigns and inculcate better lifestyle management.

The NAARM Library has more than 30,585 books, 74 International Journals (hard copies), 18 International Online Journals, 78 Indian Journals, and 13 Online Databases, i.e. EBSCO, ABI-Inform, Indiatat, Commodities and Economic Outlook. The Library has many of its publications in digital formats like CD, VCD and its own digital repository (Eprints@naarm). The Academy is also a member of CeRA, and has access to journals and databases through CSIRO, Springer and OpenJ-Gate etc. Library management has been completely digitized through the open source software 'Koha'. The Academy also has a rich

repository of online patent search providers, GIS software and other statistical software.

The Pension Authorizing Unit was shifted from ICAR-CRIDA, Hyderabad to ICAR-NAARM, Hyderabad on 16 March 2016 (vide ICAR Order No. FIN/1/153/88/Pension dated 25th August, 2015). The unit authorizes death/retirement benefits in respect of all categories of employees and families of the ICAR Institutes located in Hyderabad viz., ICAR-CRIDA; ICAR-IIRR; ICAR-IIOR; ICAR-IIMR; NRC on Meat; Directorate of Poultry Research; ICAR-NAARM; ICAR-ATARI, Zone V.

550 pension files were received from ICAR-CRIDA, Hyderabad. During 2016-17, The Academy has processed 42 new pension cases and completed

processing of cases pertaining to revision of pension in respect of 26 pre-2006 pensioners.

1.5. Human Resources (as on 31.03.2017)

The cadre strength as on 31st March 2017 in various categories is given in Table 1.4.

Table 1.4. Human resources at the Academy

Category	Sanctioned Strength	In position	Vacant
Scientific-RMP	2	1	1
Scientific- Faculty	60	34	26
Technical	43	37	6
Administrative	49	39	10
Skilled Support Staff	39	33	6
Total	193	144	49

1.6. Budget Allocation and Expenditure

The budget allocation and expenditure (as on 31.03.2017) are given in Tables 1.5 and 1.6.

Table 1.5. Non-Plan estimates and expenditure statement (₹ in Lakhs)

Head of Account	Final Estimates	Expenditure
A. Grants in Aid-Capital		
Works	0	0
Equipment	5.00	4.89
Information Technology	0	0
Furniture & Fixtures	4.00	3.99
Books & Journals	0	0
Total Capital	9.00	8.88
B. Grants in Aid-Salaries (REVENUE)		
Establishment Expenses		
i. Establishment charges	1391.91	1391.88
ii. Wages	131.75	131.75
iii. OTA	0.34	0.34
Total Salaries	1524.00	1523.97
C. Grants in Aid- General (REVENUE)		
Pension & Other Benefits	2110.00	2110.00
Travelling Allowance	8.00	8.00
Research & Operational Expenses	11.00	11.00
Administrative Expenses	494.20	494.20
H.R.D.	0	0
Misc. Expenses	19.80	19.77
Total Grants in Aid-General	2643.00	2642.97
GRAND TOTAL (CAPITAL+ SALARIES+ GENERAL)	4176.00	4175.82
Loans & Advances	5.00	3.28

Table 1.6. Plan estimates and expenditure statement (₹ in Lakhs)

Head of Account	Final Estimates	Expenditure
A. Grants in Aid-Capital		
Works	279.24	279.24
Equipment	286.56	286.56
Information Technology	69.09	69.09
Furniture & Fixtures	52.61	52.61
Books & Journals	62.50	62.50
Total Capital	750.00	750.00
B. Grants in Aid-Salaries (REVENUE)		
Establishment Expenses		
i. Establishment charges	218.50	218.50
ii. Wages	0	0
iii. OTA	0	0
Total Salaries	218.50	218.50
Grants in Aid-General (REVENUE)		
Pension & Other Benefits	0	0
Travelling Allowance	48.50	48.48
Research & Operational Expenses	124.65	124.62
Administrative Expenses	289.80	289.76
H.R.D.	23.50	23.5
Miscellaneous Expenses	38.55	38.51
Total Grants in Aid-General	525.00	524.87
GRAND TOTAL (Capital+ Salaries+ General)	1493.50	1493.37

1.7. Resource Generation

The revenue generated by the Academy through its off-campus ad sponsored training programs and other activities are provided in Tables 1.7-1.12.

Table 1.7. Resource generation from off-Campus and sponsored programs (Gross Receipts)

Name of the Programs	Amount (₹)
MDP at PAU, Ludhiana from 26-30 th Apr. 2016	232,000
DWRP at VCRI, Tirunelveli from 20-23 rd Nov. 2016	232,000
Foundation Course for Faculty of A.U.s from 2-30 th Nov. 2016	1,080,000
Training Programs for faculty & Scientists of ICAR-NDRI	241,000
Total	1,785,800

Table 1.8. Resource generation from education programs (Gross Receipts)

Name of the Program	Year	Amount (₹)
PGDMA	2014-16	6,100
PGDMA	2015-17	6,233,800
PGDMA	2016-18	9,500,000
PGDTMA	2015	29,400
PGDTMA	2017	13,000
Total		15,782,300

Table 1.9. Sponsored projects budget (2016-17)

Name of the Project	Budget outlay (₹)	Fund received * (₹)	Expenditure (₹)
RKVY-Telangana State Govt. Developing SAIDP Project	2,471,920	1,555,785	209,775
RKVY-Telangana State Govt. Impact Evaluation of Research Project	2,713,440	1,498,037	1,498,037
RIS, New Delhi (Socio Economic of LMOs)	500,000	467,580	467,580
IFPRI-ASTI Project	2,100,000	879,577	879,577
NAARM-MANAGE Collaboration Project	330,000	330,000	229,853
DBT-NAARM Project-Socio Economic Analysis of Finger Millet in India (Ragi)	1,599,000	885,335	747,044
R&D Strategies and Policies under SERB, DST	1,242,000	670,000	99,404
Total	10,956,360	6,286,314	4,131,270

* including Opening Balance

Table 1.10. Net receipts from sponsored projects

Name of the Sponsor	Net Receipts Amount (₹)
Socio-Economics of LMOs Project	106,394
RKVY, AP Project	303,252
RKVY (TS) Project on "Impact evaluation"	612,318
ASTI-IFPRI Project	299,100
Total	1,321,064

Table 1.11. Resource generation from other activities

Particulars	Net Receipts (₹)
PGDMA 2013-15	70,040
PGDMA 2014-16	3,100,000
Accumulated receipts from Sponsored Programs	186,504
Receipts from Farm Produce	199,895
Receipts from Sale of Publications	17,300
Receipts from Guest House and Quarters	4,766,183
Receipts from Institute Training Programs	853,930
Receipts for sale of application fee	104,200
Receipts from services rendered	196,835
Miscellaneous Receipts	5,889,948
Total	15,384,835

Table 1.12. Plan schemes (2016-17)

No	Name of the Scheme	Budget outlay (₹)	Fund available/ received (₹)	Expenditure (₹)
1	NAIF-ZTMC	750,000	750,000	750,000
2	NAIF-ABI	3,000,000	2,250,000	2,236,208
3	NIVEDI	70,200	70,200	70,200
4	NICHE-TELAge Project	8,750,000	5,375,005	4,592,438
5	KRISHI Project	4,976,000	5,665,815	3,370,774
6	Extra Mural Res.Project (ICT)	1,170,000	1,170,000	1,143,868
7	Extra Mural Res.Project (ESM)	1,020,000	1,020,000	1,018,963
8	FFP Project	1,225,000	1,225,000	1,222,840
Total		20,961,200	17,526,020	14,405,291

*including Opening Balance

1.8. IRC/ RAC/ IMC Meetings

1.8.1. Institute Research Council (IRC)

The 19th Meeting of Institute Research Committee (IRC) was held in the Committee Hall of Administrative building of the Academy on March 6-7, 2017 to review achievements of completed projects and progress of ongoing projects and to approve and consider the new projects proposed by the faculty members.

1.8.2. Research Advisory Committee (RAC)

A special Research Advisory Committee meeting was held on September 1, 2016 at Meeting Room of International Guest House, NAARM. The meeting was attended by Dr. T Mohapatra, Secretary, DARE & DG, ICAR; Dr. Mruthyunjaya, Chairman RAC and other members of RAC—Dr. AS Rao, Dr. TV Rao, Dr. Sudha Rao, and Dr. D Rama Rao, Director NAARM and Dr. R Kalpana Sastry, Member Secretary, RAC. The main agenda was to apprise the Director General regarding issues discussed in the previous meeting.



Dr. T Mohapatra DG (ICAR) with RAC members of NAARM

1.8.3. Institute Management Committee (IMC)

The 53rd Institute Management Committee meeting was held on 26th September, 2016 in the Committee Hall of the Director's Office, NAARM under the chairmanship of Dr. D Rama Rao, Director, NAARM. The members of the meeting were Dr. RN Chatterjee, Dr. Sarla Neelamraju, Dr. D Raji Reddy and Mr. Venkateshwarlu Vasanthapu. The special invitees from ICAR-NAARM were Dr. R Kalpana Sastry, Dr. SK Soam, Dr. I Sekar, Dr. BS Sontakki, Dr. RVS Rao, Dr. B Ganesh Kumar, Dr. P Ramesh and Mr. Ashish Roy. The main agenda was to discuss the progress of activities during the period 15th December, 2015 to 25th September, 2016. They were appraised on the salient achievements, training programs, and new initiatives proposed in EFC 2017-20 and issues discussed in the previous meeting.



Institute Management Committee of NAARM



Chapter - 2

Capacity Building



Capacity Building

Capacity building is the core mandate of the Academy and 2016-17 has been an eventful year. A record number of training events were organized ie. 71 programs covering 3706 participants, out of which 959 (25.88 %) were women participants. The Academy significantly enhanced its reach to different stakeholders beyond Agriculture and allied domains, through various programs.

As a part of its capacity building activities, since 2009, the Academy has also been associated with design and execution of academic programs, thus enhancing its capacity building initiatives. Currently it offers variety of training programs for working professionals of entire NARES. The academy offers a two-years residential program for the young graduates leading to PGDMA degree. In addition,

it also offers special programs in distance learning mode and through online platforms. The details on the Academic Programs offered by the Academy are provided in Chapter 3.

2.1. Training Programs Organized for Stakeholders of NARES

The Academy organizes various types of training programs catering to different clientele of NARES viz., Foundation Courses, Refresher Courses, Need Based Programs including sponsored programs, Online Courses, Management Development Programs (MDP), Executive Development Programs (EDP), apart from Workshops and Seminars (as shown in Fig.2.1). The gist of the programs organized is presented in Table 2.1

Table 2.1. Capacity building programs organized during 2016-17

No	Programs	No organized	% of Total	No of participants	Women	Participants/ Training
1	Executive Development Programs	2	2.82	25	0	12.50
2	Foundation Courses	4	5.63	181	70	45.25
3	Management Development Programs	4	5.63	89	6	22.25
4	Need Based Programs	29	40.85	769	166	26.52
5	Off Campus Programs	2	2.82	50	16	25.00
6	Online Courses	2	2.82	1023	303	511.50
7	Refresher Course	1	1.41	13	2	13.00
8	Sponsored Programs	10	14.08	228	55	22.80
9	Workshops, Seminars etc.	17	23.94	1385	366	81.47
	Total	71	100.00	3706	959	52.19

Types of Capacity Building Programmes (%)

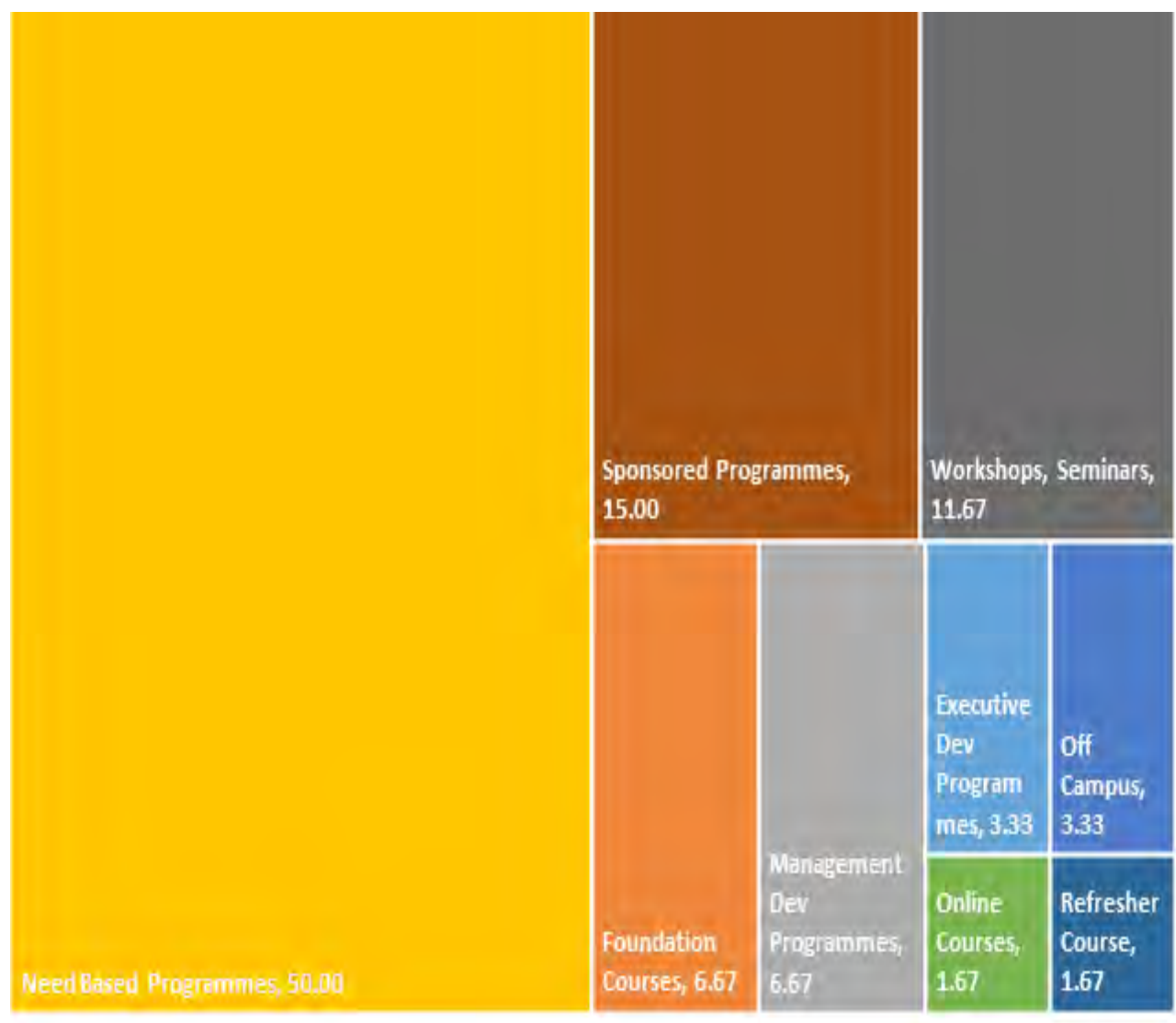


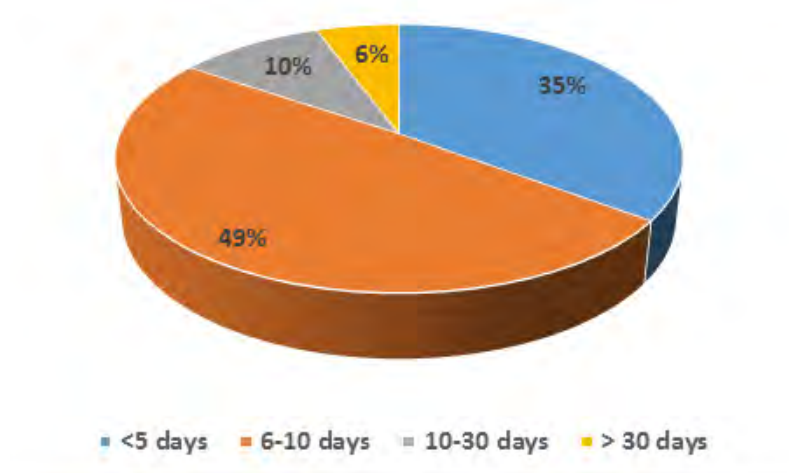
Fig. 2.1. Types of capacity building programs (percent)

The duration of capacity building programs varied from 2 days to 90 days (Table 2.2). Majority of the programs were of short duration i.e. 6-10 days

(49%), followed by those of upto five days (35%) (Fig. 2.2.) In all, 704 *training days* were utilized for capacity building of NARES.

Table 2.2. Duration of capacity building programs

No	Type of programs	<5 days	6-10 days	10-30 days	> 30 days	Total
1	Executive Development Programs	1	1	0	0	2
2	Foundation Courses	0	0	2	2	4
3	Management Development Programs	0	0	4	0	4
4	Need Based Programs	14	15	0	0	29
5	Off Campus Programs	2	0	0	0	2
6	Online Courses	0	0	0	2	2
7	Refresher Course	0	1	0	0	1
8	Sponsored Programs	2	7	1	0	10
9	Workshops, Seminars	6	11	0	0	17
	Total	25	35	7	4	71

**Fig. 2.2 Duration of capacity building programs**

2.1.1. Foundation Courses

The Academy is the backbone for organising foundation courses for the NARES. It offers Foundation Courses for the newly recruited scientists of Agricultural Research Service, popularly known as FOCARS and for newly recruited faculty of Agricultural Universities (Foundation Course for Faculty of Agricultural Universities), every year. A foundation course offered for the newly recruited Administrative Officers and Finance & Accounts Officers of ICAR also organized. The details of these courses are presented in Table 2.3. The content, duration, methodology followed etc. detailed in the following sections.

Foundation Course for Agricultural Research Service (FOCARS)

FOCARS is the flagship programs of the Academy and is offering the same twice a year. The Foundation course aims at building the competencies of the scientist probationers of Agricultural Research Service so as to nurture and develop the skills required to meet the professional challenges. The competency frame work of FOCARS comprises the development of core discipline research skills, personal effectiveness, information management and business orientation. The changing requirement of competencies forms the basis for development and organisation of the

Table 2.3. Foundation courses organized

No	Course	Period	Coordinators	*Total no. of Participants
1	3 rd Foundation Course for Faculty of Agricultural Universities (FOCAU)	May 2-31, 2016	BS Sontakki and GRK Murthy	57 (25)
2	104 th Foundation Course for Agricultural Research Service (FOCARS)	Jul 5-Oct 4, 2016	SK Soam and P Venkatesan	67 (30)
3	Foundation Course for Newly Recruited Administrative Officers & Finance & Accounts Officers of ICAR	Aug 1-29, 2016	Ashish Roy and S George	32 (07)
4	105 th Foundation Course for Agricultural Research Service (FOCARS)	Jan 5-Apr 4, 2017	K Kareemulla and S Ravichandran	25 (8)

**Figures within parentheses indicate number of female participants*

course in three phases spread over seven months. The outcome of the 'Brainstorming session on Restructuring of FOCARS', chaired by Dr Trilochan Mohapatra, Secretary DARE and Director General ICAR, enriched the subsequent FOCARS.

Phase-I: Foundation Course of three months' duration at the Academy.

Phase- II: Orientation training of one-month duration at the Institute of posting.

Phase-III: Profession Attachment Training of three months' duration in the relevant state of the art laboratories across the country.

The first phase of three months of training is organised in three stages 1) Orientation and Capacity Building 2) Field Experience Training and 3) Multidisciplinary perspectives, out of which first and third stages were organised at the Academy and the second stage at identified centers pan India for 21 days. During the on-campus capacity building programs, major emphasis was laid on modular approaches interwoven around

themes viz. 'Agricultural Policy Perspectives', 'Intellectual Property Rights and Technology Management', 'Human Resource Management', 'Documentation, Presentation and Communication Management', 'Participatory Technology Development and Dissemination', 'Developing Winning Research Proposals', 'Futuristic and multi-disciplinary perspectives', including 'Financial and Administrative Management etc.



Group Photo of 104th FOCARS, organised from 5 July- 4 October, 2016.



Shri. Chhabilendra Roul, Additional Secretary (DARE) & Secretary (ICAR) conferring the 'Best Trainee Award'

The major change/innovation introduced during the year includes VADP (Village Agricultural Development Plan), apart from inclusion of other topics like Online Collaboration Tools, Social Media, Netiquettes; Grass Root Innovations; Science Blogging; Career Planning and Growth through PDF, Fellowships; Transfer Guidelines,

Office Communication etc. For the first time during 105 FOCARS, team appreciation certificates were awarded for the best teams in thematic areas viz. Developing Winning Research Projects, Research Project Proposals and FET. A separate webpage was created with updated reading materials for easy access of trainees.



Scientist probationers of 105th FOCARS.



Dr. Trilochan Mohapatra, Secretary (DARE) & Director General (ICAR) presenting the 'Best Trainee Award'

During the year 2016-17, two Foundation Courses were organised and 92 newly recruited scientists were trained. Based on the overall performance over three months, Ms Gauri Jairath (Livestock

Products Technology) and Ms Rekha Balodi (Plant Pathology) were adjudged 'Best Trainee' of 104th and 105th Batches of FOCARS, respectively.



Field training of scientist probationers



Scientist trainee in local tribal attire

Restructuring of FOCARS

The Academy is continuously striving to improve its performance in capacity building programs. During the year, the impact of its flagship program i.e. Foundation Course for Agricultural Research Service (FOCARS) was studied. In this connection, a brainstorming session on "Restructuring of FOCARS" was organized at ICAR-NAARM on December 3, 2016 under the Chairmanship of Dr. Trilochan Mohapatra, Secretary DARE and Director General ICAR. Directors and Scientists from various ICAR organizations participated in the deliberations. The different issues pertaining to the present model of three-phased FOCARS and measures to improve the same in tune with organizational requirements were discussed. The data from 225 scientists of FOCARS batches of 94 to 102 were obtained through an on-line survey and the results formed basis for the brainstorming session.



Dr. R Kalpana Sastry, Director (Acting), NAARM address during the brainstorming session



Directors of ICAR Institutes at NAARM during the brainstorming session

Salient recommendations

Phase: I Foundation program at NAARM (3-months)

1. Optimum class size of FOCARS may be discussed and streamlined. Suggested batch size of around 80 would be optimum for efficient utilization of resources and efficacy of training.
2. Incentives for those scientist probationers securing 'A' grades need to be worked out.
3. Honorarium for faculty shall be worked out in consultation and as per the proceedings of RAC.
4. Make the course women-friendly within the ambit of existing rule provisions
5. The financial and administrative management should be covered more elaborately to the participants for smooth functioning while performing official duties.
6. Suggested to include lectures from the eminent faculty, wherever possible.
7. Duration of three weeks for FET (Field Experience Training) is optimum. PRA is a critical tool for FET and efforts are needed to include relevant PRA tools in the curriculum. FET should lead to policy directions by understanding the farmer's problems.
8. NAARM Faculty upgradation has to be done regularly. The Academy has to come out with a roadmap.

Phase II: Orientation Training at the ICAR Institutes where newly recruited Scientist are posted (1 month)

9. The 1-month time period for orientation training is optimum.
10. The Directors of Institute should arrange Orientation Training in a well-structured manner to make it more meaningful and effective for better utilization of time by the scientist-probationers with specific training outputs.
11. It should facilitate scientist probationers to identify areas for future research based on the mandate of the institute.

12. Directors needs to take appropriate action and provide reports on time to NAARM to enable timely declaration of probation of the scientists

Phase III: Professional Attachment Training (3 months)

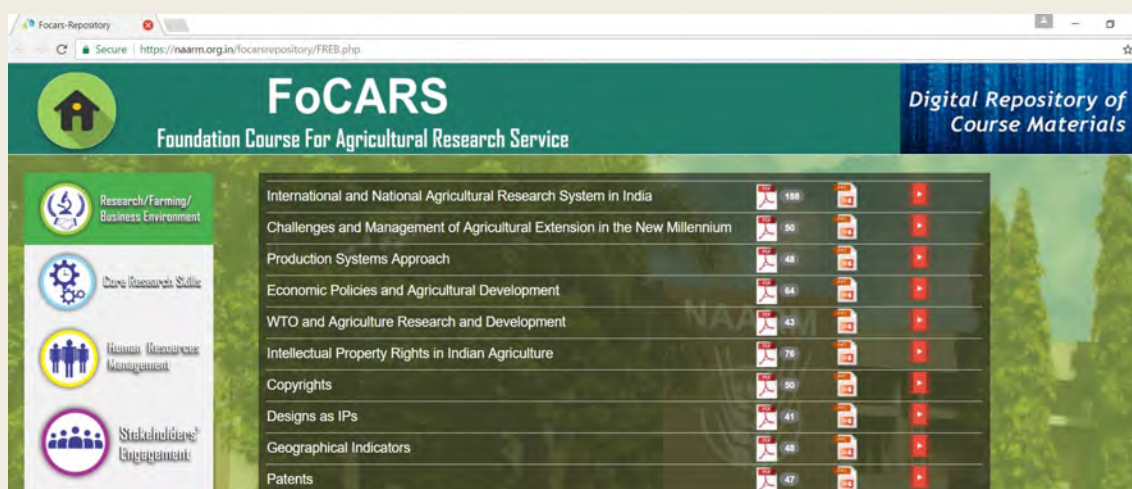
13. Professional training shall not be less than 3 months and based on the requirement, it can be stretched up to maximum of 6 months.
14. It should be mandatory for scientist–probationers to undergo Professional Attachment Training in institutions other than the institute where they are posted.
15. Directors may explore reputed international organizations within India and private organizations for Professional Attachment Training.
16. Directors may send Scientists to professional training at the earliest but not later than 3 months. It can be spaced in maximum of 2 phases, where the nature of training necessitates.

Overall FOCARS

17. Excellence in all phases may be aimed at as the third phase created more positive impact than other phases.

Innovations in Foundation Courses

1. Updated Digital Repository of course material
2. (<https://naarm.org.in/focarsrepository/FREB.php>) for FOCARS
3. Introduction of VADP _ Village Agricultural Development Plan focusing on 'Doubling of Farmers' Income' as a part of Field Experiential Training
4. New Sessions-Social Media, Netiquettes; Science Blogging; Grass Root Innovations etc. introduced
5. Continuous evaluation through impact studies
6. Modular approach in FOCFAUs



Foundation Course for Faculty of Agricultural Universities

The Foundation Course for Faculty of Agricultural Universities, third in series, was organised by the Academy from 2-31, May 2016. The course targeted the newly recruited faculty of Agricultural Universities with the following objectives: 1) to enhance knowledge, skills and attitude (KSA) of the participants in various aspects of education, teaching-learning process and technology in education, 2) to expose the participants to research and technology transfer processes and 3) to sensitize the participants to organizational capacity related to human capital, administrative and financial management.

The program benefitted 57 participants representing seven states i.e. Andhra Pradesh, Assam, Gujarat, Maharashtra, Manipur, Tamil Nadu and Telangana.

The major components of the programs include Foundations of teaching- learning, Teaching Management, Communication and Linguistic Skills, Human Resource Management, Information Communication and Extension Management, Research Methodology & Project Proposal development etc. Practical approach was predominant during the program to improve the teaching, research and extension skills through micro teaching, human resource management, digital presentation and data analysis exercises. In-house practical sessions, reinforced through field visits to reputed National and International institutions, helped participants to reflect the experiences and consolidate their learnings at the Academy.

Dr. Kasbe Sudhanshu Sudhakar, Scientist (Crop Production), DAATTC, Adilabad, of PJTSAU was adjudged the 'Best Trainee' award for his/ her outstanding performance during the program.



Participants of the 3rd Foundation Course for Faculty of Agricultural Universities



Dr. WR Reddy, Director General, NIRD & PR presenting the Best Trainee Award to the FOCFAU trainee



Dr. AK Singh, DDG (Ag Extn), ICAR addressing the participants of 3rd FOCFAU



Cultural programs during training: Women participants in traditional dress

Foundation Course for Newly Recruited Administrative Officers and Finance & Accounts Officers of ICAR

The one-month Foundation Course for Newly Recruited Administrative Officers and Finance & Accounts Officers of ICAR broadly focused on Human Resource Management, Finance Management, Administrative Management, and other areas including Official Language Policy, Lifestyle Management, Administration with Human Face, Hospitality and Etiquettes etc. All the topics which are required for newly recruited Administrative Officers and Finance & Accounts Officers covered in this one-month course organised from 1-29 August 2016.



Feedback from a participant

Personality development, group dynamics & teamwork, positive thinking, communication skills, behavioural skills, negotiation skills, emotional issues, motivation, time management etc. were given priority in the course.

Administrative and Financial Management modules covered topics like rules and bye-laws of ICAR society, rules and guidelines governing various schemes of ICAR, ARS, Employees Provident Fund, Employees State Insurance, medical rules, income tax on salaries, role and functions of DDO and ERP; GFR, budgeting and financial management, audit manual & local audit, labour laws management, DOFP rules, accrual accounting and accounting standards applicable in ICAR and procurement procedures & contract management etc.



Foundation course for newly recruited Administrative Officers and Finance & Accounts Officers of ICAR

2.1.2. Leadership Development Programs

Developing leadership for the National Agricultural Research and Education System has been the core responsibility of the Academy. A new kind of leadership thinking is the need of the hour to meet challenges and to strategically plan and envision the future of the organization. The Academy chose the

path of bringing change, innovation and leadership of organisations through capacity building and research. The capacity building program aiming at increasing the efficiency is through two types of programs—1) Management Development Programs and 2) Executive Development Programs. The details of these programs are given in Table 2.4.

Table 2.4. Leadership development programs organized

No	Title	Period	Coordinators	Total no. of Participants
1	4 th Management Development Program for Newly Recruited Program Coordinators of Krishi Vigyan Kendras	Apr 22–May 6, 2016	D Thammi Raju and P Venkatesan	24
2	10 th Management Development Program on Leadership Development (pre-RMP Program)	Jun 7-18, 2016	N Sandhya Shenoy and KH Rao	18
3	9 th Executive Development Program on Leadership Development	Aug 27-Sep 1, 2016	R Kalpana Sastry and D Rama Rao	17
4	5 th Management Development Program for Newly Recruited Program Coordinators of Krishi Vigyan Kendras	Dec 16–30, 2016	S Senthil Vinayagam and VKJ Rao	23
5	11 th Management Development Program on Leadership Development (pre-RMP program)	Dec 19 -30, 2016	RVS Rao and K Srinivas	24
6	10 th Executive Development Program on Leadership Development	Feb 18-22, 2017	R Kalpana Sastry and SK Soam	8

Executive Development Programs

The Executive Development Programs were designed to enhance the leadership competencies of newly recruited Research Managers (Research Management Positions); while Management Development Programs (MDPs) on Leadership Development prepares the prospective research managers (pre-RMP) MDPs for newly recruited Program Coordinators (PCs) of Krishi Vigyan Kendra's focuses on developing leadership in research and management extension.

During the reporting year, two Executive Development Programs, two Management Development Programs as a pre-RMP programs and two MDPs for KVKs organised.

In the two EDPs, 25 leaders i.e. newly recruited Directors (19 nos), Assistant Director Generals (ADGs) (4 nos) and Joint Directors (2 nos) of ICAR

were trained during the year. Personal Effectiveness, Leadership essentials and System focused areas were the core themes in 5 days long EDPs with integration of yoga. The sessions on topics like inspirational leadership, talent management in research organisations, leadership excellence, good governance, budget planning and implementation, priority setting, monitoring and excellence, institutional management and accountability, institution building were dealt through case studies, experiential sharing, field visits etc. Profiling of leaders enriched these programs. The flexible framework enabled leaders to reflect on their experiences during the program, which provided an opportunity for the participants to make presentations on their experience on leadership and to make a self-audit to look at what they would or would not do during their tenure as leaders.



Dr. Trilochan Mohapatra, Secretary (DARE) & Director General (ICAR) presenting the completion certificate



Participants of 10th EDP with Dr. R Kalpana Sastry, Director (Acting), NAARM

Management Development Program on Leadership Development (pre-RMP Program)

During the year of report 42 Senior Principal Scientists/ Professors and prospective research managers of ICAR and SAUs participated in two Management Development Programs on Leadership Development (pre-RMP Program). The pre RMP programs on leadership helped the participants to understand their own personality dimensions, developed core competencies to face leadership challenges, and required skills in research and technology management, information and knowledge management, and administration & finance management.



Team building exercise for upcoming leaders



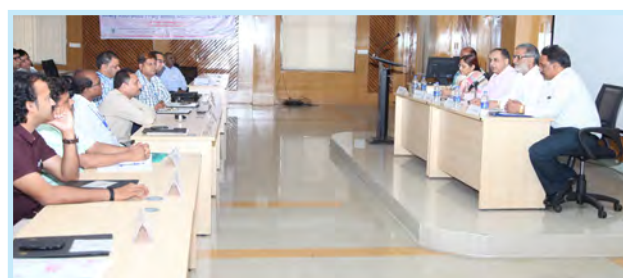
Shri. Chhabilendra Roul, Additional Secretary (DARE) & Secretary (ICAR) interacting with the participants of MDP

Management Development Program for Newly Recruited Program Coordinators of Krishi Vigyan Kendra's

The Academy realised the need to develop capacities of key functionaries/leaders of Extension System in the country and so far three Management Development Program for Newly Recruited Program Coordinators of Krishi Vigyan Kendra's were

organised. This MDP consists three phases 1) 15 days in house training at the Academy, 2) 10 days at the Best KVK and 3) 5 days at respective zonal ATARI (Agriculture Technology Application and Research Institute). Generally, the newly recruited Program Coordinators had the background of different disciplines/sciences and there is a need to orient them to the Extension System.

During the year 2016-17, two such programs on developing the leadership capacities of 47 Heads of KVKs, managed by ICAR, SAUs and NGOs, were organised. Modular approach followed in these programs on identified themes viz. writing project proposals for front-line extension & action research, Human Resource Management, Entrepreneurship Development, ICTs in Agriculture, Oral Communication, Success Stories and Case Studies, Statistical analysis, Impact assessment, Gender perspectives, Administration and Financial Management along with other general topics keeping in view the current trends and needs of the Extension System. Innovation is the core philosophy of the Academy. During this year, the issue of a comprehensive course completion certificate covering all the three phases was introduced from 5th MDP onwards.



Dr. AK Singh, DDG (Extn), ICAR addressing participants of 4th MDP for PCs of KVKs



Dr. KS. Varaprasad, Former Director, IIOR presenting completion certificate during 5th MDP for PCs of KVKs

2.1.3. Refresher Courses

The Academy build the required capacities of directly recruited Senior/ Principal Scientists (lateral entry) of ICAR through 12 days' refresher course with the focus on broadening the research perspectives and research management techniques and methodologies, apart from equipping them with KSAs needed to effectively discharge their roles and responsibilities (Table 2.5). During this year, 13 such directly recruited Senior Scientists and Principal Scientists from West Bengal, Tamil Nadu, Uttar Pradesh, Jharkhand, New Delhi, Haryana, Gujarat, Maharashtra and Telangana, were trained.



A training session during the Refresher Course

Developing Leadership in National Agricultural Research System

A National Consultation convened at NAARM, with the participation of top 20 officials of ICAR in January 2011, discussed the need for leadership development in National Agricultural Research System. This Consultation recommended that NAARM should conduct Management Development Programs (MDPs) on Leadership Development for the Principal Scientists and Heads of Divisions (Prospective leaders who would like to move into leadership position) and Executive Development Programs (EDPs) on Leadership Development for newly recruited personnel in leadership positions (Research Management Position or RMP) in the ICAR system. Accordingly, the Academy designed, developed and has been executing these core programs on Leadership during last five years (2011-15). An evaluation study on the effectiveness of these programs was undertaken during 2016 with a primary objective to continuously understand the gaps in the courses and improve their delivery to the stakeholders.

Observations, follow-up interactions, and questionnaire evaluation were used for the evaluation study, using Kirkpatrick model of training evaluation. Main findings of this evaluation were:

Learning acquired through participation in MDP helped the scientists to perform their interviews well and move into leadership position. Twenty of the MDP-trained scientists could move into leadership position during the period of study.

Participation in MDP also helped the scientists to perform their roles more effectively than before, even if they could not move into leadership position. It also offered them to make choice-decisions to pursue towards next level positions of their professional career.

EDP-trained leaders were found to be able to execute their leadership roles more effectively after their participation in the program. Some of the indicators that pointed out the effectiveness of the trained-leaders included facilitating better and more publications in the institute; promoting better teamwork; managing change and innovation; and increased number of externally-funded projects.

With this positive trends emanating from the study and the suggestions given by the trained participants themselves, it is certain that the leadership development programs are needed and useful for scientists in the National Agricultural Research System.

More details in:

Manikandan P, KH Rao, and R. Kalpana Sastry. 2016. Developing Leadership in National Agricultural Research System. Occasional Paper No. 17. Pages 1-28. At: <https://naarm.org.in/wp-content/uploads/2017/01/OccasionalPaper17.pdf>.

Table 2.5. Refresher courses organized

No	Title	Period	Coordinators	Total no. of Participants
1.	11th Refresher Course on Agricultural Research Management (for directly recruited Senior and Principal Scientists in ICAR)	Nov 15–26 , 2016	Surya Rathore and M. B. Dastagiri	13

2.1.4. Need Based Programs

Expressed demand from stakeholders and research findings forms the basis for offering need based capacity building programs at the Academy. It caters the different stake holders viz. Agricultural Universities, Government Departments, sister Institutes of ICAR etc. in enhancing the efficiency of their employees. A variety of themes from human resource management, technology management to financial and administrative management were the central themes of these programs (Table 2.6). A significant number of need-based training programs organised over the previous year (241% increase), with the duration of 02-10 days. Major themes covered for different functionaries of ICAR as follows.

Themes of Need-based programs

1. Administration, Finance and Supporting Staff

- Establishment & Financial Management, NIC's e-Procurement solution, Reservation, RTI, Behavioural Skills and Personal and Work Excellence

2. Technical Officers

- Development of Personality, Soft Skills and Hospitality Management and Motivation & Positive Thinking

3. Scientists / Faculty

- Impact Assessment of Agricultural Extension, Intellectual Property and Technology Management, Analysis of Experimental Data, Geo-Spatial Analysis for Natural Resource Management, Bioinformatics Tools and Techniques in Agriculture, Implementation of Training Functions and Stress Management.



Dr. Joykrushna Jena, DDG (Fisheries) addressing the participants of IP & TM for researchers



A skilled support staff of the Academy receiving training completion certificate



Director, NAARM and program directors with trainees of entrepreneurship and business incubation program



Distribution of certificates to participants of 'Implementation of NIC's e-Procurement solution through CPP Portal for ICAR' program

Table 2.6. Need-Based programs organized

No	Theme	Period	Coordinators	Total no. of Participants*
1	Implementation of NIC's e-Procurement solution through CPP Portal for ICAR Institutes located in western part of India in coordination with NIC	Apr 25-26, 2016	Debasis Moitra and P Mohan Singh	62 (18)
2	Implementation of NIC's e-Procurement solution through CPP Portal for ICAR Institutes located in western part of India in coordination with NIC	Apr 27-28, 2016	Debasis Moitra and P Mohan Singh	34 (05)
3	Reservation in Service including Reservation Roster and Reservation Register	Apr 27-29, 2016	BD Phansal and Debasis Moitra	30 (07)
4	Soft Skills and Personality Development for Technical Officers of ICAR	Jun 1-10, 2016	PD Sreekanth and MA Basith	37 (4)
5	Impact Assessment of Agricultural Extension	Jun 6-10, 2016	Surya Rathore and B Ganesh Kumar	27 (4)
6	Intellectual Property and Technology Management for Researchers (under IP&TM Project)	Jun 13-18, 2016	Manoj P Samuel and R Kalpana Sastry	19 (02)
7	Enhancing Efficiency and Behavioural Skills of Stenographers Grade-III, PA, PS, PPS, Sr. PPS of ICAR HQs and Institutes	Jul 28-Aug 3, 2016	Debasis Moitra and J Renuka	31 (15)
8	Competency Enhancement Program on Hospitality Management for Technical Officers of ICAR Institutes	Aug 10-12, 2016	Zameer Ahmed and P Vijender Reddy	14 (02)
9	Motivation and Positive Thinking for Technical Officers of ICAR	Aug 17-26, 2016	Janardhan Rao Chelli and Laxman M Ahire	34 (02)
10	Analysis of Experimental Data	Aug 18 -23, 2016	S Ravichandran and A Dhandapani	25 (7)
11	Stress Management	Sep 6-9, 2016	A Debnath and P Ramesh	13 (2)
12	Developing Winning Research Proposals in Agricultural Research	Sep 20-24, 2016	SK Soam and BS Sontakki	15 (8)
13	Implementation of NIC's e-Procurement solution through CPP Portal for ICAR Institutes located in Eastern part of India in coordination with NIC	Sep 26-28, 2016	WS Bhat and Raju Kumar	27 (05)
14	III Module of Induction Training of new direct recruited Finance & Accounts Officers on ICAR	Oct 17-Nov 16, 2016	S George and N Vijaya Lakshmi	01 (0)
15	Geo-Spatial Analysis for Natural Resource Management	Oct 18-27, 2016	PD Sreekanth and SK Soam	18 (4)
16	Training for Nodal Officers of Public Authority related to RTI online Portal of DoP&T (RTI-MIS)	Oct 25, 2016	Ashish Roy and P Vijender Reddy	40 (08)
17	Bioinformatics Tools and Techniques in Agriculture	Nov 1-10, 2016	M Balakrishnan and Dinesh Kumar (IASRI)	17 (4)
18	Financial Management in ICAR	Nov 15 -19, 2016	S George and N Vijaya Lakshmi	01 (0)
19	Enhancing Efficiency and Behavioural Skills of Stenographers Grade-III, PA, PS, PPS, Sr. PPS of ICAR HQs and Institutes	Nov 24 -30, 2016	Laxman M Ahire and WS Bhat	35 (17)
20	Program on Motivation and Positive Thinking for Technical Officers of ICAR	Nov 30- Dec 9, 2016	N Sivaramane and P Vijender Reddy	43 (3)

No	Theme	Period	Coordinators	Total no. of Participants*
21	Establishment and Financial matters for Assistants/UDCs of ICAR	Dec 22-28, 2016	Ashish Roy and WS Bhat	34 (06)
22	Enhancing Efficiency and Behavioural Skills of Stenographers Grade-III, PA, PS, PPS, Sr. PPS of ICAR HQs and Institutes	Jan 4 -10, 2017	P Mohan Singh and KR Ghanshyam	33 (16)
23	Competency Enhancement Program for Effective Implementation of Training Functions by HRD Nodal Officers of ICAR	Feb 13 -15, 2017	RVS Rao and P Ramesh	21 (2)
24	Competency Enhancement Program for Effective Implementation of Training Functions by HRD Nodal Officers of ICAR	Feb 16 -18, 2017	RVS Rao and KH Rao	17 (2)
25	Competency Enhancement Program for Effective Implementation of Training Functions by HRD Nodal Officers of ICAR	Feb 20-22, 2017	RVS Rao and Alok Kumar	26 (2)
26	Analysis of Experimental Data	Feb 20-25, 2017	A Dhandapani and S Ravichandran	24 (7)
27	Competency Enhancement Program for Effective Implementation of Training Functions by HRD Nodal Officers of ICAR	Feb 23-25, 2017	P Ramesh and KH Rao	31 (4)
28	Establishment and Financial matters for Assistants/UDCs of ICAR	Mar 1-7, 2017	S George and Ashish Roy	33 (03)
29	Personal and Work Excellence for skilled support staff (SSS) of NAARM.	Mar 20 -25, 2017	Alok Kumar and RVS Rao	27 (7)

*Figures within parantheses indicate the number of women participants

2.1.5. Workshops, Seminars, Conferences and Meetings

The scientific tenacity of the Academy was reflected in active engagement in organising and facilitating workshops, seminars, conferences etc., on the campus and off the campus. During the year 2016-17, 19 such events were organised by the Academy, as detailed in Table 2.7. National and International agencies associated in organising workshops and conferences.



Dr. Rashmi Agrawal, Director, NILERD and Dr. D Rama Rao, Director, NAARM during a Brainstorming workshop on veterinary manpower requirement

Workshops

The workshops facilitated intensive discussion and activity on given themes like manpower requirement, zero budgeting, access to biological resources, impact of ICT and Technology Enhanced Learning on Agri-Education, Agricultural Research and Education Management Strategies, Good Practices in Extension Research and Evaluation, FOCARS, and Farmer FIRST Program etc. In the reporting year, 9 workshops were organised on the campus.



Dr. AK Singh, DDG (Extn) ICAR addressing participants of National review and sensitization workshop on Farmers' FIRST Project.



Dr. B. Meenakumari, Chairperson, NBA during an Awareness Workshop on Biological Diversity Act



Participants of Policy Workshop organised under TELAgE project

Seminars

In collaboration with IFPRI, one-day National Seminar was organized at New Delhi with the theme of "Recent Trends in Agricultural Research Capacity, Investment and Outputs" and another 4 days National Seminar in collaboration with Society of Extension Education, Agra & ICAR, New Delhi organized at the Academy with a focus on "Nutrition-sensitive agriculture: changing role of extension".



Dr. NS Rathore, DDG (Edn) delivering the inaugural address on the occasion of 8th National Extension Education Congress-2017

Meetings

XXIII ICAR Regional Committee Meeting for Zone-II, one of the very important meetings on Centre-State Coordination in Agricultural Research, Education and Extension was organised in collaboration with Central Inland Fisheries Research Institute, Barrackpore involving stakeholders of different sectors—agriculture, horticulture, animal husbandry, fisheries, rural development and agro-forestry. The top officials of states viz. Andhra Pradesh, Telangana, Odisha, West Bengal and Andaman & Nicobar Islands participated in the meeting.



Arrival of experts for XXIII Meeting of ICAR Regional Committee II



Deliberations during outreach event organised under IFPRI sponsored ASTI project at NAAS, New Delhi.



A cross section of audience of XXIII Meeting of ICAR Regional Committee II

Other significant meetings and workshops held at the Academy are indicated in Table 2.7.

Table 2.7. Workshops, Seminars, Conferences and Meetings organized

No	Name of the Program	Period	Coordinators	No of participants*	Organized by (In association with)
Workshops					
1	Brainstorming Workshop on Veterinary Manpower Requirements	Apr 30, 2016	D Thammi Raju	13 (3)	NILRD, New Delhi
2	State Level Training cum Workshop "Zero budgeting natural farming– State 25 level TOT	May 4-6, 2016	P Venkatesan	35 (15)	State Department of Agriculture, Telangana
3	Awareness Workshop on Guidelines for Access to Biological Resources under Biological Diversity Act, 2002	Jul 15, 2016	SK Soam	68 (11)	Biotech Consortium India Ltd (BCIL)
4	Consultative Workshop on Impact of ICT on Agricultural Education in India	Aug 8 -9, 2016	Surya Rathore and S Ravichandran	17 (07)	ICAR, New Delhi
5	Brainstorming Workshop on Agricultural Research and Education Management Strategies for 2030	Sep 2, 2016	BS Sontakki	50 (06)	---
6	Workshop on Good Practices in Extension Research and Evaluation	Nov 29–Dec 2, 2016	BS Sontakki	23 (08)	CRISP, MANAGE, Hyderabad
7	Brainstorming Workshop on restructuring of FOCARS	Dec 3, 2016	D Thammi Raju	83 (17)	---
8	Workshop on "Strategies for Adopting Technology Enhanced Learning in Agricultural Education"	Mar 14 -15, 2017	S Senthil Vinayagam and GRK Murthy	53 (07)	TELAGe project under NAE, ICAR
9	National-level Review-cum-sensitization Workshop on Farmer FIRST Program (FFP)	Mar 18 -19, 2017	P Venkatesan N Sivaramane and BS Sontakki	115 (13)	Extension Division, ICAR
Seminars					
10	National Seminar on 'Recent Trends in Agricultural Research Capacity, Investment and Outputs in India' at New Delhi	Aug 17, 2016	B Ganesh Kumar and R Kalpana Sastry	25 (06)	IFPRI, S.E Asia center
11	8th National Extension Education Congress on "Nutrition-sensitive agriculture: changing role of extension"	Jan 28–31, 2017	BS Sontakki	280 (82)	Society of Extension Education, Agra & ICAR, New Delhi
Meetings					
12	XXIII ICAR Regional Committee Meeting for Zone-II (150)	Jun 24 -25, 2016	B Ganesh Kumar	150 (6)	CIFRI, Barrackpore
13	Review meeting on "Implementation status of MIS-FMS" for Hyderabad-based ICAR Institutes	Dec 13, 2016	N Srinivasa Rao	30 (04)	e-Governance Division, ICAR Head Quarters
14	Interactive session on "Growth Issues for Libraries using Koha LMS"	Feb 24, 2017	N Srinivasa Rao and SK Soam	22 (04)	---
15	Panel Discussion on Planet 50-50 by 2030	Mar 8, 2017	Surya Rathore	90 (55)	---
16	Interactive session on Doubling Farmer's Income by 2022	Mar 18, 2017	P Krishnan	325 (120)	SAUs,
17	National Science Day	Feb 28, 2017	P Krishnan	95 (15)	---

*Figures in parentheses indicate women participants.

2.1.6. Sponsored Programs

The capacity building programs sponsored by different research and development organisations were also organised by the Academy in two modes—off campus and on campus. During the year two off-campus programs sponsored by Tamil Nadu Veterinary and Animal Sciences University and Punjab Agricultural University were organised at their respective places.

Nine on campus sponsored training programs organised as detailed in Table 2.8, majority sponsored by ICAR as short courses, DST and KVASU. Out of these nine programs, three were organised as a part of research projects of ICAR.

One International Training Program on "IP & Technology Management" for Bangladesh Agricultural University Officials, sponsored by SAARC was also organised at the Academy.



Smt. V Usha Rani, Director General, MANAGE during valedictory program under TELAgE Workshop



International participants from Bangladesh visit to TELAgE Lab



A session under the training program on "Big Data Analytics in Agriculture"



Off campus program at PAU, Ludhiana



Group work of participants

Table 2.8. Sponsored programs organized

No	Title	Sponsored by	Amount (Lakh Rs.)	Period	Coordinators	Total no. of Participants
1	Developing Winning Research Proposals for faculty members of TANUVAS (off campus)	TANUVAS	2.33	Apr 20-23, 2016	SK Soam and D Rama Rao	25 (7)
2	Strategies for enhancing the performance of the Research Managers of PAU (off campus)	PAU, Ludhiana	2.32	Apr 26-30, 2016	RVS Rao and DD Verma	25 (9)
3	International Training Program on IP & Technology Management for Bangladesh Agricultural University Officials	SAARC	\$5330	May 9-13, 2016	R Kalpana Sastry	5 (0)
4	Big Data Analytics in Agriculture	DST	6.00	Jun 13-22, 2016	S Ravichandran and N Sivaramane	43 (7)
5	Personality Development and Self-motivation for Enhanced Performance of Agricultural Scientists and Teachers	ICAR Short course	1.95	Jul 12-21, 2016	RVS Rao KH Rao and P Ramesh	25 (3)
6	ICT Applications for Agricultural Extension	ICAR Short course	1.95	Aug 25-Sep 3, 2016	Surya Rathore, Sandhya Shenoy and M Balakrishnan	17 (5)
7	Teaching Excellence (TCET) through Distance Mode (off-line)	ICAR New Delhi	---	Sep 26-Nov 2, 2016	S Senthil Vinayagam and GRK Murthy	41 (17)
8	Video and Computer-Based Educational Materials Production (under TELAgE)	ICAR	1.05	Oct 19-28, 2016	D Thammi Raju and S Senthil Vinayagam	16 (6)
9	Entrepreneurship Development and Business Incubation Scope and Models (Under Center for Agri-Innovation)	KVASU, Thrissur	4.00	Oct 24-28, 2016	K Srinivas	22 (5)
10	Competency Skill Enhancement for Extension Professionals	ICAR	1.95	Nov 1-10, 2016	P Venkatesan, BS Sontakki and N Sivaramane	17 (0)
11	Innovative Approaches to Technology Enhanced Learning (under TELAgE)	ICAR	3.0	Nov 17-26, 2016	GRK Murthy and P Ramesh	19 (6)
12	Recent Innovations in Educational Technology	ICAR Short course	1.90	Dec 6-15, 2016	P Ramesh D Thammi Raju and S Senthil Vinayagam	23 (6)

**Figures in parentheses indicate women participants.*

2.1.7. Online Courses

The Academy organised two online courses 1) Massive Open Online Course, 2nd in series of MOOCs organised in NARES and 2) Online distance course for selected participants (Table 2.9).

The major objective of Massive Open Online Course (MOOC) on 'Competency Enhancement for Effective Teaching' is to enable the participants to understand various dimensions of teaching and develop effective teaching styles for quality education over 5 weeks. A record number of participants *i.e.* 1003 from 122 institutions from Science, Technology, Engineering, Agricultural and Mathematics

stream (STEAM) participated in the course. The course success rate was 52.74% (529 out 1003). Overall pictures portray that agriculture and allied sciences represented by 69.28% participants and the remaining 30.72% represented by other domains. More than three-fourths of the registered users (about 77%) were young faculty/scientist/postgraduate / doctoral students. Remaining 23% belonged to different categories.

An online course on 'Teaching Excellence through Distance Mode' was offered to 20 faculties of selected University to understand the learning dynamics and to compare online and offline modes.

Table 2.9. Online courses organized

No	Title	Period	Coordinators	Total no. of Participants
1	Massive Open Online Course (MOOC) on Competency Enhancement for Effective Teaching	Nov 18–Dec 22, 2016	D Thammi Raju and G R K Murthy	1003 (300)
2	Teaching Excellence through Distance Mode (Online)	Sep 26 –Oct 25, 2016	S. Senthil Vinayagam and G.R.K. Murthy	20 (3)

**Figures in parentheses indicate women participants.*



Online address by Dr. Trilochan Mohapatra, Secretary DARE & DG, ICAR to MOOC participants



Dr. Trilochan Mohapatra, Secretary DARE & DG, ICAR releasing the book on "MOOC @ NAARM" during Agricultural Education Day

2.2. Training Programs Attended by the Staff of Academy

2.2.1. Faculty members

2.10. Trainings attended by the faculty members

Employee Name	Program Name	Organized by	Period	Cost Incurred
Dr. Sanjiv Kumar	Faculty Development Program	IIM, Indore	25 Apr–31 May, 2016	45,800
Dr. Sudhir Kumar Soam	National Seminar on IAAR for food	India	04–06 May, 2016	4,000
Mr. SP Subash	FDP Program	IIM, Ahmedabad	06 Jun–24 Sep, 2016	1,96,786
Dr. Sreekanth Pagadala Damodaram	Big data analytics in Agriculture	ICAR-NAARM, Hyderabad	13–22 Jun, 2016	DST sponsored
Dr. R Kalpana Sastry	Senior Tech. practitioner	Hyderabad	20 Jul, 2016	16,250
Dr. Thammi Raju Dhumantaraao	Building Excellence in Professional Higher Education	ISB, Hyderabad	24–25 Jul, 2016	69,000
Dr. S Ravichandran	Competitive instalisure transforming informations	XIME, Bangalore	04–05 Aug, 2016	4000
Dr. N Sivaramane	Contemporary Business Analysis practice	IIM, Kolkata	14–17 Sep, 2016	1,03,500
Dr. S Ravichandran	MDP on Business Analytics in Big Data world	New Delhi	21–23 Sep, 2016	24,000
Dr. Sanjiv Kumar	Certificate course in Advanced Business Analytics using R	IIT, Hyderabad	01–23 Oct, 2016	25,000
Mr. S.P. Subash	Access to Seed	ISID, New Delhi	24–28 Oct, 2016	13,034
Dr. Manju Gerard	Refresher Course on Agricultural Research Management	ICAR-NAARM, Hyderabad	15–26 Nov, 2016	
Dr. GR Ramakrishna Murthy	Refresher Course on Master Teacher Program	Indian School of Business, Hyderabad	17–20 Nov, 2016	40,000
Dr. Surya Rathore	Management development Program on leadership development (a pre-RMP Program)	ICAR-NAARM, Hyderabad	19–30 Dec, 2016	Nil
Dr. Venkata Satyanarayana Rao Rajanala	Program on Emotional Intelligence at work place for scientists/Technologists	Centre For Organizational Development, Hyderabad	30 Jan–03 Feb, 2017	Nil
Dr. M Krishnan & Dr. D Thammi Raju	Science Administration and Research Management at Associated Staff College of India, Hyderabad	Administrative Staff College of India, Hyderabad	06–17 Feb, 2017	Sponsored by DST

Employee Name	Program Name	Organized by	Period	Cost Incurred
Dr. Manju Gerard	Entrepreneurship Development & Management for Women Scientists & Technologists with the Government sector	Entrepreneurship Development Institute of India, Ahmedabad	06–10 Feb, 2017	Nil
Dr. Thammi Raju Dhumantarao	E-Learning and digital Education	Administrative Staff College of India, Hyderabad	20–22 Mar, 2017	34,000
Dr. GR Ramakrishna Murthy	E-Learning and digital Education	Administrative Staff College of India, Hyderabad	20–22 Mar, 2017	34,000
Dr. S Senthil Vinayagam	E-Learning and digital Education	Administrative Staff College of India, Hyderabad	20–22 Mar, 2017	34,000
Dr. N Srinivasarao	E-Learning and digital Education	Administrative Staff College of India, Hyderabad	20–22 Mar, 2017	34,000

2.11. Seminars/Workshops/Conferences/Exhibitions attended by the faculty members

Employee Name	Program Name	Organized by	Period
Dr. Thammi Raju Dhumantarao	Methodological considerations for Impact Assessment of ICT on Agricultural Education in India	ICAR–NAARM, Hyderabad	08–09 Aug, 2016
Dr. Thammi Raju Dhumantarao	Agricultural Research and Education Management strategies for 2030	ICAR–NAARM, Hyderabad	02 Sep, 2016
Dr. Manju Gerard	Asian Science Park Association 20th Annual Conference	Hyderabad International Convention Centre, Hyderabad	19–22 Oct, 16
Dr. Manju Gerard	Global Rajasthan Agritech Meet	JECC, Jaipur	09–11 Dec, 2016
Dr. Manju Gerard	Advanced Workshop on IP Management	NASC Complex, New Delhi	12–14 Jan, 17
Dr. Manju Gerard	1st BioNEST Conclave- Bioincubators Nurturing Entrepreneurship for Scaling Technologies	Indian Habitat Centre, New Delhi	30–31 Jan, 2017
Mr. SP Subash	Impact evaluation of issues related to climate change and agriculture	Institute for Economic Growth, New Delhi	06–10 Feb, 2017



Chapter - 3
Academics



Academics

With changing perspectives of Indian agriculture, the Academy has envisioned its potential of excellent human resource management in the field of agricultural research into education. Accordingly, the Academy currently offers the following Post Graduate education programs.

1. Two-year full time residential Post Graduate Diploma in Management (Agriculture) approved by All India Council for Technical Education (AICTE), since 2009.
2. One-year Post Graduate Diploma in Technology Management in Agriculture in distance mode in collaboration with the University of Hyderabad, since 2011.

Number of students who have successfully graduated from PGDMA and PGDTMA programs during the last six years is illustrated in the following Fig.3.1.

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

The Post Graduate Diploma in Management -Agriculture (PGDMA) is a two year, fully residential program approved by the All-India Council for Technical Education (AICTE). This program is designed to contribute a new generation of young agri-business managers with a holistic perspective of agriculture and agribusiness, and with capacities to find tangible solutions to challenges faced by the stakeholders of this sector. The program grooms students as potential managers and provides value addition in terms of functional expertise, entrepreneurial acumen, service orientation, and general management perspective so that they are better equipped to take leadership roles and steer the transformation of agriculture in India.

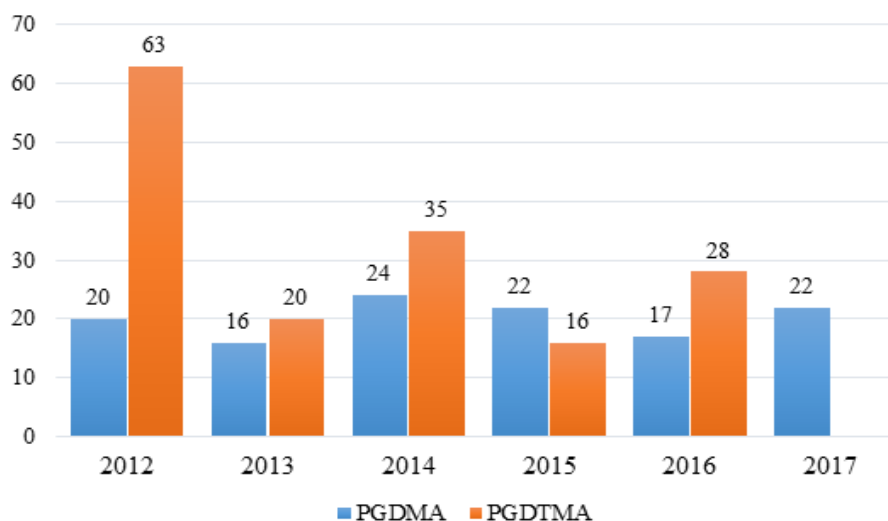


Fig.3.1. Students graduated under PGDMA and PGDTMA programs

3.1.1. Admissions

A total 30 students took admission for the eighth batch of PGDMA (2016-18) program. The admission process for the ninth batch of PGDMA (2017-19) has been initiated. The details of these educational programs are outlined in the following Table 3.1

The seventh batch of PGDMA (2015-17) had 22

students. All of them successfully graduated and were placed in leading agri-business companies. During the program, they were offered 35 Courses in various areas of management, Summer Internship of 10-weeks duration, and a Project Work in the VI Trimester. The details of the projects undertaken by the students is listed in the Table 3.2.

Table 3.1. Details of educational programs

Programs	Period	Number of students
PG Diploma in Management (Agriculture) 2016-18 Batch (1 st Year)	Jul 1, 2016-Apr, 2018	30
PG Diploma in Management (Agriculture) 2015-17 Batch (2 nd Year)	Jul 1, 2015-Apr, 2017	22
Total		52

Table 3.2. Details of study projects undertaken by the students of 2015-17 batch (IGDMA)

Student's Name	Project Title	Guide/Supervisor (NAARM Faculty)
Aaftab Alam	Performance analysis of solar powered irrigation pumps in Banaskantha district of Gujarat State	M Krishnan
Anand Gupta	GIS mapping of agri-input dealers	A Dhandapani
Ashish Kumar Thakur	Value chain analysis of apple in Kullu district of Himachal Pradesh	S Ravichandran
Ayush Bhandari	Estimation of consumers' willingness to pay for 'functional pasta' using experimental auction approach	P Venkatesan
Chandana Yasoda Bogadi	Strategic profile analysis of custom hiring centers for farm machinery and implements	K Kareemulla K Srinivas
Deshmukh Nilesh Prataprao	NABFINS role in financial inclusion of under-privileged sections in selected areas of Maharashtra and Madhya Pradesh	Manju Gerard
Kamalendrakumar Singh	Role of NABFINS in women empowerment through microfinance in Dhule (Maharashtra)	SK Soam
Kotha Mani Bharat	Evaluation and implementation process of e-NAM in Telangana State	PC Meena
Manjunath Arakeri	Analysis of trade trends for Indian pulses	MB Dastagiri
MD Gyasuddin	Role of NABFINS in micro-finance through NGOs to SHGS and extent of utilization by SHG's in Ramgarh district of Jharkhand State, India	VK Jayaraghavendra Rao
Milan Gupta	Implementation and performance of APMC Mandi under National Agriculture Market (e-NAM) in Madhya Pradesh	Ranjit Kumar
Mukthar Alam	Mapping of 'Front end' supply chain for distribution of millet products	M Balakrishnan
Nishant Gaurav	Geospatial analysis of fertilizer demand-supply at district level in Uttar Pradesh State	PD Sreekanth K Srinivas
Pragati Mishra	National Agriculture Market (e-NAM) : organization and performance	Sanjiv Kumar
Saurabh Kumar	Value chain analysis of Ragi in Uttarkhand	KH Rao
Sheesham Rana	Mobile based agro advisory services (MAAS) in India : an assessment of their effectiveness	Bharat S Sontakki
Vishwanath Veerappa Javoor	ICT innovation in agriculture : a case of UAS Dharwad KVK	S Senthil Vinayagam

3.1.2. Placements

A total of 12 companies from different sectors of agribusinesses participated in the placement process in the reported year. The companies are listed in the Table 3.3. All the students of seventh batch were placed in different companies with an average CTC of ₹6.1 lakhs per annum.

3.2. PG Diploma in Technology Management in Agriculture (PGDTMA)

The Post Graduate Diploma in Technology Management in Agriculture (PGD-TMA) in collaboration with University of Hyderabad (UoH) is being offered since 2011. Out of 404 students enrolled, 162 students have successfully completed this program, till date. Most of the students are in-service candidates representing various Governmental and Non-Governmental Organizations such as ICRISAT, Technology Information, Forecasting and Assessment Council

(TIFAC), Planning Commission, Agricultural Universities, University of Hyderabad (UoH), Food Corporation of India (FCI), and State departments.

3.2.1. Student Projects

As partial fulfilment of the course, the students take up research study projects. These projects are done with independent research supervisors including NAARM, approved by the University of Hyderabad (UoH). The projects are evaluated by the project evaluators identified by the UoH. The projects undertaken with NAARM Faculty are listed in Table 3.4.

3.3. NAARM Faculty Guiding MSc / PhD students

Students from different agricultural and allied universities are pursuing their MSc / PhD dissertations / theses under the guidance of the NAARM faculty. The details of the students and their corresponding projects are listed in the following Table 3.5.

Table 3.3. List of companies that participated in placement process

Chambal Fertilisers and Chemicals Ltd	NABARD Financial Services Ltd.
Cocoon Warehousing and Logistics Pvt Ltd	Nagarjuna Fertilizer and Chemicals Ltd.
Dhanuka AgriTech Ltd.	NCDEX Ltd
ESAF Microfinance Ltd.	Q&Q Research Insights Pvt Ltd
Jubilant life sciences	TATA Consultancy Services Ltd.
Kynetec data services Pvt Ltd	UPL Ltd.

Table 3.4. Details of projects guided by NAARM faculty (PGTMA)

Student's Name	Project Title	Guide/Supervisor (NAARM Faculty)
Samtani Nisha	Organic Farming Promotion through Training and Information Sharing for Food , Nutrition and Income Security	PD Sreekanth

Table 3.5. PhD and MSc dissertations/thesis guided by NAARM faculty

Faculty	Student	Program	Title of the Dissertation / Thesis	University/ Institute
B Ganesh Kumar	Gulab Pathak	MSc	Supply chain analysis of Litchi in Muzaffarpur district of Bihar Nadu	PJTSAU
M Balakrishnan	Naresh Kumar Jajoriya	MSc	Agrobiodiversity for millet crops resources in Andhra Pradesh and Telangana.	SKN Agricultural University, Jobner, Rajasthan
M Balakrishnan	Naveen Kumar Md Atheeq Sultan Ghor	MSc	Yield prediction/Forecasting model for Turmeric and Sugarcane using Artificial Neural network and data mining techniques	Bharathiar University Coimbatore, TN
PD Sreekanth	Shyo Ram Yadav	MSc	Developing GIS based Decision Support System (DSS) for Rice Production and Rice Bran Oil Industries of Five States in India.	SKN Agricultural University, Jobner, Rajasthan.
P Krishnan	V Vanitha	PhD	An adaptive e-learning system for learning path construction based on affective state and cognitive ability	Anna University, Chennai
M Gerard	Shyla Haqq	PhD	Synthesis and characterization of silver nanoparticles biofabricated from medicinal plants: <i>Jasminum auriculatum</i> and <i>Chrysanthemum coronarium</i>	SHIATS, Allahabad
M Gerard	Rayees Ahmad Mailk	PhD	Synthesis of novel organic pyridine tetrazole based transition metal complexes for advanced photonic applications	SHIATS, Allahabad
BS Sontakki	P Vijender Reddy	PhD	A study on training management in National Academy of Agricultural Research Management (NAARM)	PJTSAU, Hyderabad
M Krishnan	I Sivaraman	PhD	A critical analysis of better management practices in shrimp farming in Andhra Pradesh	ICAR-CIFE, Mumbai
M Krishnan	Green Sea	MFSc	An assessment of career choice among fisheries graduates of India	ICAR-CIFE, Mumbai
SK Soam	Rajneesh Yadav	PhD	Phylogenetic study for sweet orange (NOR) gene with similar homologous protein sequence with other fruit crops	SKN Agricultural University, Jobner, Rajasthan

3.4. Co-curricular Activities of the Students

In order to equip the students with requisite knowledge, attitude and skill for their professional career, many initiatives have been taken in the Academy. Few of them are briefly stated hereunder.

3.3.1. Sankalp

It is a national level business event organized by PGDMA students comprising of various competitions like poster making, Ad. making, business quiz, case study, etc. The event aims at building the organizing ability of the students.

On 17 Sep 2016 Marketing events included were "Marketing Catapult" and "Brand Oceania". Darpan, a B-Quiz and Alokhyia, poster making competitions, Ad-Nirmaan, an IMC Plan Competition and Samadhaan, a case study competition were also held at NAARM. Winners were awarded prizes and certificates of participation were given to all participants.



Participants during the Sankalp 2016



Winners receiving certificate from Dr. R Kalpana Sastry, Director (Acting), NAARM

3.3.2. Krishi-Kalp

It is a Business-Plan competition organized by the Academy inviting participation from various institutes across the country. The event provides an opportunity to imbibe new ideas among the students apart from getting to know what other B-school students are doing. PGDMA students were encouraged to participate in the competition.

3.3.3. Manthan

It is a weekly event organized by the Academy for the PGDMA students, where every student has to present on a pre-decided topic before the audience. The program aims at grooming the communication skills of the students.

3.5. Awards and Recognition of PGDMA Students

Student Team from NAARM comprising of Mr. S. Kavinraaj and Mr. Siddharth Bhattacharya of First Year PGDMA was awarded the FIRST POSITION in Mahindra Agripreneur (National Level Case Study Competition) conducted by Mahindra Agri-Solutions. The two-member team called 'The Mavericks', was among the 6 shortlisted teams of finalists from 300 entries. The Prize included a certificate and a Cash Award of Rs. 75,000.



NAARM students receiving first prize in National level case study competition

For more information: <https://www.youtube.com/watch?v=ZWcJaKo4yic>

3.6. Graduation Day

The 2nd Graduation Ceremony of the Post Graduate programs of the Academy was held on 3rd September, 2016. Shri. Suresh Rayudu Chitturi, Vice-Chairman and MD, Sreenivasa Hatcheries Ltd. was the Chief Guest. He gave away the Certificates and felicitated the Medal Winners, who topped their respective examinations in the year 2015-16. Ms. Sanjana Bhowmick and Mr. K. Mellesh Goud received Gold Medals for their Academic Excellence in PGDMA and PGDTMA programs respectively on the occasion. In all, 16 students of the Post

Graduate Diploma in Management in Agriculture (PGDMA) and 28 students of the Post Graduate Diploma in Technology Management in Agriculture (PGDTMA) received the degree.



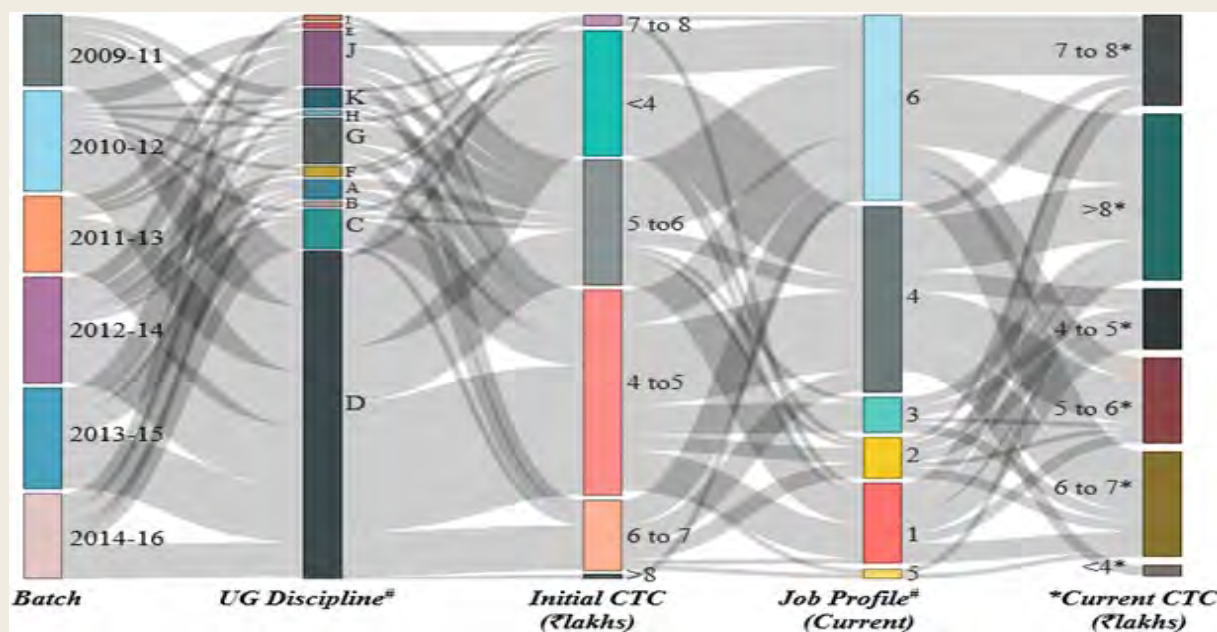
K. Mellesh Goud receiving Gold Medal for Academic Excellence

PGDMA- Journey Since 2009

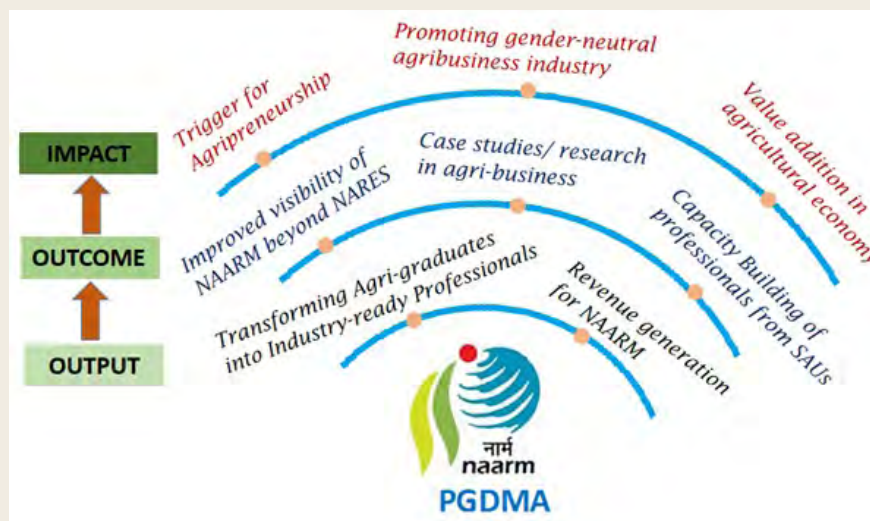
The study was undertaken to understand the performance of the course and to identify possible areas of improvement in terms of creating quality manpower; getting the first-hand information about the aspirational goals of the graduates; and identifying the opportunities for scaling-up and for diversifying the agribusiness management education. The PGDMA course has attracted students from nearly 26 agricultural universities, representing 19 states.

The program has benefitted the students in big way in terms of communication skill, improving the analytical, management and IT skills. This eventually has led to achieve 100 percent placement which is considered to be one of the most important "pull factor" in any management college. The job profile of NAARM Alumni is dominated by Sales and Marketing. The annual increment in salary for the NAARM-graduates is quite satisfactorily

During initial years, the increase was less but it is now picking up indicating the performance of our graduates in the industry. Overall, the NAARM alumni are quite satisfied with the choice they made and the achievements they realized. The inclination towards starting own venture in the future is one of the well-intentioned findings.



The PGDMA program has created a positive ripple effect. The effect can be categorized into three set of waves. The first effect is immediate output in the form of agribusiness professionals and also as a new source of revenue generation for the Academy. The second wave is an outcome which is intangible but more valuable in the form of improved visibility of NAARM and building a new area of research in specific field of agri-business. The third wave is a long-term impact which can be felt through increase in agri-preneurship, increase in value addition to agricultural economy and a gender neutral agribusiness industry. In cumulative terms, the program is not only helping the Academy to develop new niche area for itself, but also helping the ICAR in meeting long-term goals of catalyzing agriculture sector through intervention in marketing and value chains.



More details at: Ranjit Kumar, Kalpana Sastry, R., Sanjiv Kumar, Rao, K.H. and Meena, P.C. (2017). PGDMA: A Journey since 2009. Occasional paper 18, ICAR-NAARM, Hyderabad.

Impact Studies of IP & TM Training and Courses offered by NAARM in Agriculture

The Academy has been spearheading several capacity building initiatives since 2007. Starting as sensitization and awareness programs in area of intellectual Property Management for ICAR, it soon offered customized training programs in specific domains. In 2009, based on 5th QRT recommendations, the Academy offered for the first time a one year residential course Post Graduate Diploma in IP and Technology Management in Agriculture. When 16 students were admitted and completed the course successfully. Based on demand from industry the course was redesigned and offered on distance education platform to reach to working professionals too. Currently the course continues to be offered in distance mode in partnership with Center for Distance Education (CDVL), University of Hyderabad. An evaluation study was undertaken during 2016 to understand the impact of these initiatives across NARES and beyond.

The study was done as a mid-course analysis to understand whether the objective of the IP & TM course and programs has met. The analysis indicated a positive development of skills in this area. It is evident that the training had led to development of large human resources in the NARES, which is in alignment with the ICAR IP policy. Interestingly, the impact of the academic program was indicated to greater as compared to short training programs. The six years of the academic program had led to creating an ecosystem of professionals, who are skilled and were able to gain careers, projects and promotions. It had also helped students and early career professionals to remold their career in the area of IP & TM. Results voiced for more such initiatives for developing higher level professionals in the evolving domain of IP & TM in agriculture. In the emerging era of digital platforms for distance learning programs (MOOCs), the program may be explored for reaching more stakeholders through such platforms to enhance the reach of the courses.

More details at: Subash, S.P., Gerard, M., Srinivas, K. and Kalpana Sastry, R (2017). Developing intellectual property and technology management professionals in NARES: The case of NAARM. Occasional Paper 19 (In Press).



Chapter - 4

Research and Consultancy Projects



Research and Consultancy Projects

4.1. Overview of Research Projects

During the reported period, 20 research projects were in operation, out of which NINE were funded by the Academy and EIGHT were externally funded by ICAR and ONE by DBT. In addition, there were THREE consultancy projects—one each by Tobacco Board, RGMVP- Bareilly and RIS and MoEFCC.

The research projects were taken up under following major themes:

- Leadership and governance of agricultural innovation systems.
- Information and knowledge management for promoting innovation and good governance.

- Education systems management for enhancing educational environments, continuous learning, faculty excellence, learner empowerment, and expanding reach.
- Extension systems management for sustainable livelihoods security and farmer empowerment.
- Agribusiness management for efficient, responsive and sustainable agri-food systems.

4.1.1. Institute Funded Projects

There were NINE institute funded projects as shown in (Table 4.1).

Table 4.1. List of institute funded projects

No	Name of project	Personnel / Team	Period
1	Assessment of applications of statistical time series modelling for agricultural commodity price forecasting	S Ravichandran	03/14 to 12/16
2	Development of portal for Indigenous Technology Knowledge	M Balakrishnan SK Soam P Venkatesan	03/14 to 03/18
3	Impact of producer company in fostering community entrepreneurship	P Venkatesan BS Sontakki N Sandhya Shenoy	04/14 to 12/16
4	Development of teaching competency framework for quality agricultural education	P Ramesh D Thammi Raju	04/16 to 03/18
5	Case study development in Agriculture	VKJ Rao Surya Rathore	04/15 to 03/17
6	Gender-based ICT led knowledge management in agriculture	N Sandhya Shenoy VKJ Rao PD Sreekanth	07/16 to 06/17
7	International market signals for Indian agricultural trade during WTO regime: R&D strategies and policies	MB Dastagiri K Kareemulla	04/16 to 03/17
8	Strategic and financial analysis of livestock feed industry in India	Sanjiv Kumar B Ganesh Kumar PC Meena	04/16 to 03/18
9	Asynchronous learning in agricultural higher education through MOOCs: A Case Study Research	D Thammi Raju GRK Murthy	04/16 to 03/18

4.1.2. Externally Funded Projects

There were EIGHT externally funded projects as shown in (Table 4.2).

Table 4.2. Externally funded projects

No	Name of project	Personnel/ Team	Sponsored by	Budget (Lakh Rs)	Period
1	Technology enhanced learning in agriculture education (TEAgE)	GRK Murthy D Thammi Raju P Ramesh S Senthil Vinayagam	ICAR, New Delhi	425.00	01/14 to 12/17
2	Socio-economic analysis of finger millets in India	B Ganesh Kumar N Sivaramane	DBT, Govt. of India	43.88	04/15 to 03/18
3	Enhancement of teaching competency through distance learning	S Senthil Vinayagam GRK Murthy	ICAR, New Delhi	14.50	02/16 to 03/17
4	KRISHI-ICAR research data repository for knowledge management	A Dhandapani SK Soam	ICAR, New Delhi	49.76	01/14 to 03/17
5	Establishment of ABI	K Srinivas Manju Gerard SP Subhash	ICAR, New Delhi	79.15	01/16 to 03/17
6	Commercialization of agricultural technology scheme (IPTM-ZTMC)	K Srinivas Manju Gerard SP Subhash	ICAR, New Delhi	19.15	04/14 to 03/17
7	Impact of ICT on agricultural education in India	Surya Rathore S Ravichandran	ICAR, New Delhi	16.00	01/16 to 03/17
8	Management and impact assessment of Farmer FIRST project	P Venkatesan BS Sontakki N Sivaramane	ICAR, New Delhi	65.00	03/17 to 03/18

4.1.3. Consultancy Projects

There were THREE consultancy projects as shown in (Table 4.3).

Table 4.3. List of consultancy projects

S.No	Name of project	Personnel / Team	Sponsored by	Budget (Lakh Rs)	Period
1	Environmental Impact Assessment of Tobacco Curing	I Sekar K Kareemullah P Krishnan	Tobacco Board	20.87	03/17 to 12/ 17
2	Socio-economic Study on Community-Based Seed Producers (CBSP), groups of women SHG, group model in Uttar Pradesh	SP Subash	RGMVP, Rae Bareilly	2.50	09/16 to 06/17
3	Developing Guidelines and Methodologies for Socio-Economic Assessment of LMOs	K Srinivas PC Meena SP Subash	RIS and MoEFCC	6.00	05/15 to 06/16

4.2. Institute Funded Research Projects

4.2.1. Assessment of Applications of Statistical Time Series Modelling for Agricultural Commodity Price Forecasting

Producing reliable forecasts is often a key objective in agricultural research. A reliable forecast should be unbiased or at least consistent, should provide a narrow confidence interval for the expected value of the economic variable of interest, and should incorporate confidence bands that adequately portray the likelihood of the variable's occurrences. Time-series models are widely used for these purposes. Among them, the generalized autoregressive conditional heteroskedastic process (GARCH) and its predecessor, the autoregressive conditional heteroskedastic process (ARCH) have proved useful for modeling a variety of time-series phenomena because many time-series variables exhibit autocorrelation, as well as, dynamic heteroscedasticity. Models for price forecasting of many agricultural commodities have been carried

out by different agencies from time to time. It was proved that prices of agricultural commodities are more volatile than those of the non-farm commodities. These commodities are less elastic to price and income and inherently unstable due to weather and institutional risks. The high volatility in prices of agricultural commodities can have a disproportionate, typically nonlinear or asymmetric impact on the economy and may fail to endure exceptional shocks.

Keeping this in mind, the study was undertaken to collect information on price forecasting models utilized for different agricultural commodities being used at present; identify parameters influencing commodity-wise price forecasting; test those models under market conditions using live datasets; develop case studies on price forecasting and recommend suitable models for price forecasting. Data on daily arrival and the minimum, maximum and modal prices, were collected for the period January 2015 to December 2016 from a Telangana mandi (Gaddiannaram). There were 720 data points and plotting of data clearly showed that there was high volatility present in the datasets



Fig.4.1. Price of grapes in Telangana

of all three commodities, such as, onion, tomato and grapes prices. Of 720 data points, 90% of data points were utilized for developing different time-series models, such as, ARIMA Time Series models, Structural Time Series Models (STM), Non-Linear Time Series Models, ARCH, GARCH, TAR, STAR and SETAR family of models for forecasting of agricultural commodities, which show volatility in prices. Remaining 5% of data were utilized for testing and validating the developed model using various tests of accuracy measures viz., RMSE, SE, AIC, SBC etc. These models were developed by estimating the relevant parameters using the above time-series modelling measures. ARCH model was found to be the best for the datasets on prices of the agricultural commodities such as onion, tomato and grapes, since these data show the presence of high volatility in the data and thus, ARCH model, can be utilized where there is high volatility in prices of commodities.

4.2.2. Development of Portal for Indigenous Technology Knowledge (ITK)

The research project was undertaken in order to identify and categorize ITKs in agriculture and to develop a web portal for ITKs. In this project, a schedule has been prepared for data collection. Primary and secondary data were collected from Farmers, Department of Agriculture, TNAU, ANGRAU, UAS, KAU, KVK, FET reports, published reports, CD-ROM released by ICAR and Inventory of Indigenous Technical Knowledge in Agriculture Document 1/2/3 by Mission Unit, Division of Agricultural Extension, Indian Council for Agricultural Research.

The portal contains the description and basic set of information related to Indigenous Technical Knowledge (ITK) resources, such as, name of the ITK, common name, description, location, economic importance, etc. Collection of data on crops grown, sources of irrigation, yield particulars, input use, cropping pattern, incidences of pests and diseases,

employment pattern, constraints faced, etc. in both pre- and post-tsunami situations, has been completed. The database has been designed by relational database method. Development of front end in JSP, back end in MS-SQL server and tables using MS-SQL is underway. So far, 56 ITK entities for cotton, 265 for rice, 13 for maize and 23 for animal sciences and fisheries have been updated in the database. The datasets of animal science and fisheries pertain to Tamil nadu and Andhra Pradesh.

4.2.3. Impact of Producer Company in Fostering Community Entrepreneurship

This study was undertaken to document the operational mechanism of selected producer companies, capture the profile of producer members, delineate the critical success factors and challenges, assess the perceived impact, and suggest policy strategies for promoting producer companies (PCs).

Five PCs from Tamil Nadu and two from Madhya Pradesh were selected, based on the type of PCs, which are either community-based or resource oriented or any other (commodity-based and market oriented). The selected PCs were promoted by the Government, NGO or individuals.

A questionnaire was administered to collect data from thirty members of each PC to evaluate the perceived-impact of producer members with social and economic indicators, in a five-point scale. The perception towards performance of the company was gauged in a seven-point scale.

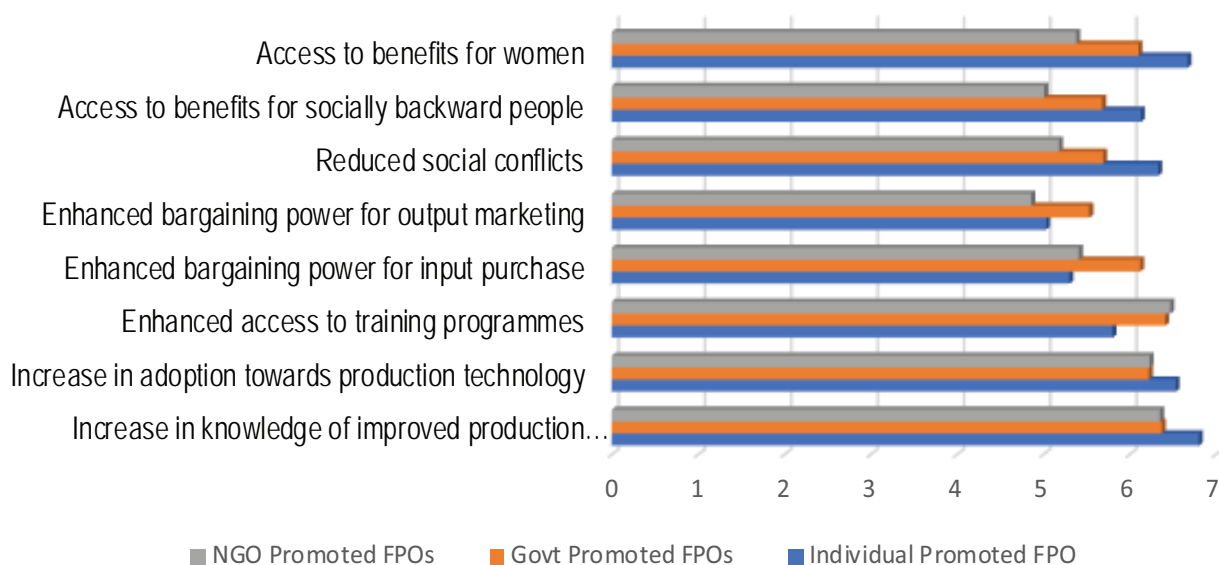
The members perceived that the membership to the company and company's activities brought effectiveness towards increase in input availability, increased productivity of commodity, net returns, utilization of farm mechanization and power, access to credit and cropping intensity. However, the perceived effectiveness of members towards assured market price, value addition linkage, related infrastructure and assured buy-back was below the average value (Table 4.4)

Table.4.4. Perceived effectiveness of producer members- Economic indicators

Economic indicators	Individual Promoted FPO (n= 30)	Govt Promoted FPOs (n=90)	NGO Promoted FPOs (n=90)
Increase in utilization of farm mechanization and power	6.80	6.09	5.82
Increase in input availability	6.43	6.34	6.32
Adequate access to credit availability	4.73	6.13	5.99
Increase in cropping intensity	6.13	5.80	5.49
Increase in productivity of commodity	6.60	6.12	5.69
Increase in net returns	5.73	6.22	5.68
Assured buy-back	3.07	5.31	4.60
Assured market price	3.13	5.99	5.13
Value addition linkage and related infrastructure	3.00	5.43	4.47
Average	5.07	5.94	5.46

The social indicators in the study indicated that the membership contribute to enhanced knowledge of improved production technology, bargaining power for input purchase, access to benefits by women and increase in adoption towards production technology. However, with regard to access to

benefits by socially backward people, reduction in social conflicts, enhanced bargaining power in input purchase, and enhanced bargaining power for output marketing, the perceived effectiveness rating was less than the average value.

**Fig.4.2. Social indicators of producer members**

The perceived-opinion of members towards the performance of the company was that the composition of membership had been heterogeneous. With regard to the interventions, the study showed that the concept of FPO helped in avoiding the domination of specific group of people and elimination of political intervention. Further,

it also helped in robust record maintenance, members' cohesiveness, infusing transparency of activities and financial transactions. The study showed that the concept of FPOs also paved way for the members to participate in the decision making process.

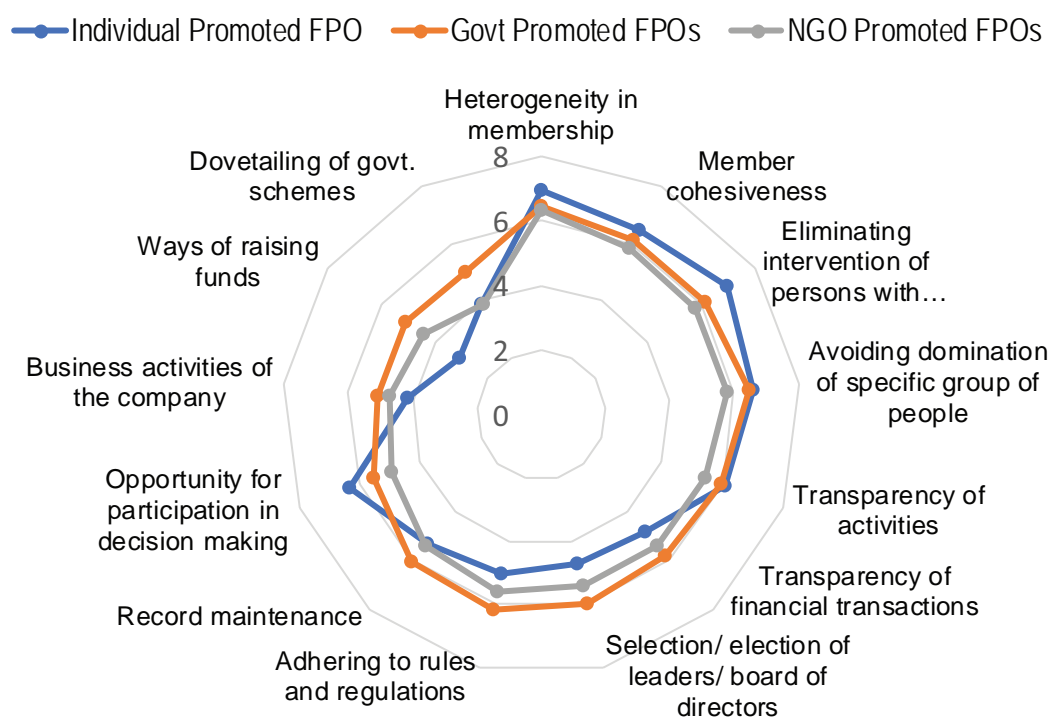


Fig. 4.4. Perceived effectiveness- Perception towards performance



Interaction with the producer members of FPOs

4.2.4. Development of Teaching Competency Framework for Quality Agricultural Education

The teaching competency framework is a tool to find out teachers' effectiveness, their competency strengths, deficiencies and needs and suggest the possible ways and means to improve the competency of faculty, so as to improve overall quality of teaching and education. The objective of this study was to develop a teaching competency framework for the faculty of Agricultural Universities by estimating the level of teaching competencies as perceived by faculty, students and academic administrators. Accordingly, a Teaching Competency Questionnaire (TCQ) was developed after reviewing the existing literature in the national and international journals and also by consulting the senior faculty of the agricultural and veterinary universities. The developed questionnaire was validated by testing on a sample population of faculty. A 28-item competency questionnaire was finalized with the following broad competency domains: subject matter knowledge; curriculum and pedagogical content knowledge; teaching strategies and communication skills; assessment and evaluation; attitude and values and professional skills.

This questionnaire would be used to collect the data from faculty, students and academic administrators of selected agricultural universities to find out the existing deficit and required competencies for the final development of teaching competency framework.

4.2.5. Case Study Development in Agriculture

Case studies are live examples of farmers from around the world demonstrating the best practices for sustainable agriculture. With this objective of the project, two cases were developed using a structured questionnaire and interview schedule. It was pretested with both types of positive and negative statements using spilt half method. In order to improve the reliability of the instrument, *ex-post-facto* research design was used and

data were collected from with 60 and 28 SHG groups in the Academy's adopted villages viz., S. lingotam and Tallasingaram of Chowtuppal Mandal of Nalgonda district respectively. Palei village of Tonk district, was selected as 'control' for the study. Focused group discussions, interviews and interpersonal discussions were held with the self-help groups and growers of mango, where GI registry was accorded. The GI case study locale included Sagar taluk of Shimoga district for appetite pickle mango, and Lucknow for Malehabadi Dussheri, and Gujrat Kutch region for the Gir Kesar mango.

Case on SHG sustainability

In the above case, thrift thrives in the village among all the self-help groups, and the repayments were regular and no defaulters were seen. But, the entrepreneurship has to take off by the groups emerging to do economic activities on production of scale like the Ankireddy gudem Jhansi samabhava sangham which is doing book binding and earning profits @ of ₹1 per book. They produce one lakh books per month of all sizes and supply to the pre- contracted schools and colleges and shops and market up to Hyderabad. They earn a net profit of not less than Rs. 10000 per month per member of the group, which has 10 members. They are maintaining good finance, and the economic activity is strengthened by hand holding of company called DIVIS in Chowtuppal and the market linkages are also provided by them. In S. lingotam and Tallasingaram, our partner was Pratishta industries, who produce Organic fertilizers and other inputs. They can source the raw materials in these adopted villages and the products produced by these SHGS need market linkages. There is scope for generating income for the people through the process of forward and backward linkages and vertical integration.

Case on the impact of GI on mango growers

The case indicates that awareness was positive towards Appemidi, Malehabadi Dasher, and Gir Kesar, and the income almost doubled after the

GI to the tune of Rs.2,25,000 in Appemidi and ₹2,40,000 in case of Gir Kesar per acre, with an average production of 9 tonnes/acre. The highest increase in net income was in Malehabadi Dasher at around Rs. 4,32,000 per acre. Therefore, the conclusion is that GI tag is a tool to increase farmers' income and make the supply chain and value chain very productive and profitable. Because of the GI tag, genuine Dasher and Gir Kesar and Appemidi can be bought by customers through online stores also.

4.2.6. Gender-based ICT led Information Management in Agriculture

The research study was undertaken to carry out gender-wise knowledge gap analysis with regard to agriculture technologies in major crops; identify the gender-based factors affecting the adoption of ICT tools in agriculture; identify and standardize the information and knowledge system on agriculture; develop a prototype for web-based GIS information system and a gender disaggregated database on ICT's use in agriculture by farm men and women. Integrated ICT model was employed in the project for participatory needs assessment and media research.

During the period under report, data collection instruments were developed, tested and data collection was taken up by randomly selecting the farmers to find the knowledge gaps with reference to the major crops, as well as, gender based ICTs use in the selected villages.

The knowledge gap analysis undertaken among the respondents from the selected villages viz., S. Lingotam and Tallasingaram indicated the highest gap in the area of plant protection for all the major crops viz., paddy, cotton (64.32%, 57.81%) and red gram (47.91%, 55.53%). The knowledge gaps in case of paddy pertaining to brown plant hopper, tungro and leaf roller management, seed treatment and zinc management for problem soils were very high in both the villages. The other areas with high knowledge gaps included soil testing, saline-alkaline soil management, iron deficiency management and crop rotation with pulses.

ICTs access and use indicated easy access for the media, televisions and mobile phones in both villages. Radio, phone (land line), computer, video etc., are not used for agriculture by any of the respondents in both villages. The use of newspaper (27% and 12%) and Agriculture Magazine (12% and 3%) was very low in S. Lingotam and Tallasingaram. Among the preferred media for agriculture information, television ranked the most, followed by mobile and newspaper, based on RBQ values irrespective of the nature of education, age, landholding and farming experience in both the study villages. In contrast, the Agriculture magazine, Annadata occupied the first position, followed by Television in the selected villages of Mahabubnagar district with regard to the preference of media use for agriculture based on the credibility factor.

The preference of media, used for agriculture, is highly correlated with the access and use of media. Therefore, exposure to new media is essential to develop preference. There is no difference regarding the preference of media use for agriculture between educated and illiterate, young and old, large, small or marginal farmers, with more or poor farming experience.

However, the access to Wi-Fi indicated gender difference due to the differential awareness and access to the instrument. While none of the women was aware of Wi-Fi, few men possessing smart phones (15%) accessed Wi-Fi. 15% of men accessed social media (Face book and WhatsApp) from their smart phones. None of the women had smart phones and were not aware of these social media. 50% of women got SMS messages on pest management in their cell phones. Therefore, SMS messages (audio/ text) in cell phone are easily accessed by women. Cellphones were basically used by both the genders for financial information and loans. 45% men and 33 % women contacted bank officers from their mobile phones. 23% men contacted Agriculture Officers, while none of the women ever contacted.

The access to the new media and training on their use are essential for using ICT extensively in the

field of agriculture. During the period under report, rural ICTs website was designed and linked 141 digital soil health cards to village cadastral maps. 309 web pages and 286 information modules were developed in vernacular languages and uploaded in the information kiosks established in the selected villages.

4.2.7. International Market Signals for Indian Agricultural Trade during WTO Regime: R&D Strategies and Policies

The market economy depends on price signals to correctly allocate its scarce resources. Market analysis content helps us discover profitable opportunities. Market export signals at a general level, all commodity prices are affected by the market fundamentals of demand and supply. This study analyses market signals of exports, imports and prices of major India's agricultural commodities and identification of their destinations; and tracked on international policies and reasons affecting market and price signals.

The export-import growth rates and elasticities of major agricultural commodities during 1990-2013 are presented in Tables 4.5 and 4.6. The results showed that during 1990-91 to 2012-13, import

growth rates of Indian crops., Beans dry, Maize, Tobacco, Cotton and Jute were more than those of exports, whereas millets, rice, soyabean, ground nut and wheat export growth rates were more than those of imports. In other crops a mixed trend was observed. The export and import price growth rates of all crops were found to be positive except that of wheat import price. During 1990-91 to 2012-13, the results showed that the export and import price elasticities of all crops were found to be positive. During 2001-2013, ground nut import price elasticity was found to be high due to significant change in quantity than price.

The international policies and reasons for price and market fluctuations are found related to Demand and Supply, Political and Legislative, Exchange rate, Energy, Fertilizer Prices, Interest Rates, WTO, Weather and Disasters, Production technologies, Future markets, Insurance, Public Policies Promotion and Safety nets.

The result is evident that during 1990-91 to 2000-01, some of the crops, like, Maize, cotton and tobacco import growth rates are high because of initial WTO liberalization period when the quantity imported was less but in the later period the same increased to more.

Table 4.5. Export-Import price elasticity of major agricultural commodities (%)

Crops	1990-91 to 2000-01		2001-02 to 2012-13		1990-91 to 2012-13	
	Export elasticity	Import elasticity	Export elasticity	Import elasticity	Export elasticity	Import elasticity
Beans, dry	0.93	1.10	0.60	0.40	0.41	0.41
Beans, green	0.00	1.00	0.28	1.00	0.00	1.00
Bran, maize	0.00	0.00	0.51	-0.72	0.00	0.00
Bran, wheat	1.34	0.98	1.01	1.82	0.03	1.07
Cotton	0.99	1.50	0.56	4.52	0.67	0.80
Groundnut	1.37	0.00	0.41	16.74	0.51	0.00
Jute	0.59	1.96	0.15	0.06	0.57	0.65
Maize	0.00	0.88	0.67	0.11	0.00	0.10
Millet	1.15	0.00	0.53	0.00	0.65	0.00
Rice	1.32	0.98	0.39	0.23	0.70	1.04
Sorghum	0.00	0.00	0.62	0.00	0.00	0.00
Soybeans	0.99	0.00	0.26	0.48	0.27	0.00
Tobacco	1.09	0.65	0.36	0.24	0.39	0.20
Wheat	1.12	0.98	0.27	0.31	0.42	1.32

Source: FAOSTAT, Data base, Accessed on 30th May, 2017

Table 4.6. Compound annual growth rate of major agricultural commodities (%)

Crops	Variables	1990-91 to 2000-01		2001-02 to 2012-13		1990-91 to 2012-13	
		Export Growth Rate	Import Growth Rate	Export Growth Rate	Import Growth Rate	Export Growth Rate	Import Growth Rate
Beans, dry	Qty	-13.44	-10.88	13.3	13.87	1.92	7.55
	Price	-3.11	1.84	3.37	6.29	1.78	3.32
Beans, green	Qty	0	-100	15.79	-100	0	-100
	Price	0	0	9.28	0	0	0
Bran, maize	Qty	0	0	38.7	2.24	0	0
	Price	0	0	5.19	-6.72	0	0
Bran, wheat	Qty	37.93	-14.37	-32.81	11.36	0.21	-6.66
	Price	-2.54	-0.93	9.31	-3.13	3.79	1
Maize	Qty	0	106.38	33.27	8.05	0	34.19
	Price	0	1.16	3.11	14.77	0	10.15
Millet	Qty	4.63	0	11.92	0	10.63	0
	Price	-0.47	0	4.09	0	1.71	0
Rice	Qty	10.62	-13.62	13.44	26.39	13.83	-15.03
	Price	-1.62	1.47	6.45	11.53	1.47	5.78
Sorghum	Qty	0.00	0.00	63.42	0.00	0.00	0.00
	Price	0.00	0.00	3.71	0.00	0.00	0.00
Soybeans	Qty	63.03	0	27.64	21.92	28.35	0
	Price	0.09	0	10.72	5.55	5.56	0
Tobacco	Qty	3.05	39.01	8.83	5.28	5.52	15.28
	Price	-0.21	125.87	6.15	7.46	3.25	52.41
Groundnut	Qty	8.35	0	17.28	43.95	10.59	0
	Price	-1.57	0	6.55	-18.68	2.62	0
Jute	Qty	-5.45	5.46	4.34	0.36	0.7	3.39
	Price	-7.87	-2.21	10.04	4.31	0.47	1.1
Cotton	Qty	-25.81	91.37	59.36	-5.97	8.43	33.53
	Price	-1.93	-3.59	4.56	5.3	1.5	0.91
Wheat	Qty	17.39	-21.74	7.15	18.02	17.36	-6.77
	Price	-0.86	-25.01	7.72	8.72	3.63	-8.64

Source: FAOSTAT, Data base, Accessed on 30th May, 2017

4.2.8. Strategic and Financial Analysis of Livestock Feed Industry in India

The study was undertaken for evaluating the current status of livestock feed industry in India, analyzing the financial performance of livestock feed manufacturing units, and identifying the problems and prospects of livestock feed industry. It has various components, like, mapping the industry spread across the country both for private and cooperative sectors, formulating strategies for the industry, carrying financial analysis (vertical and horizontal analysis and ratio analysis), and identifying problems faced by the industry and the factors encouraging the industry growth. The study embodies both primary and secondary data collection. State-wise number of cattle feed plants has been collected using Delphi technique and mapped.

Globally, the feed production for livestock including cattle, poultry and aqua feed, together has crossed one billion tonnes. India's share of global feed production is 3.04% (Table 4.9). The total number of compound cattle feed manufacturers is estimated to be 353 which accounts for 31.2 % of total feed production in the country. This production is only 20% of total concentrate production in the country. Remaining 80% of the total concentrate is home-mix, i.e., prepared at home by mixing various ingredients.

State-wise spread of cattle feed plants

The number of cattle feed plants across the states, under private, cooperative and government sectors,

is collected and presented in Fig.4.5. It was found that the feed plants are more in number in states, like, Maharashtra, Gujarat, and Karnataka. The total number of feed plants are much more in Maharashtra (51), which is due to the presence of large number of private manufacturers in the state (41). In terms of number of cooperative cattle feed plants, Gujarat is leading (14). Cattle feed plants in north-east states are very less and some are in the government sector.

Composition of cattle feeds across regions

More the number of cows and buffalos, more will be the demand for feed; hence, there would be good potential for the feed industry. Cross-bred cows are being fed more of manufactured compound feed, compared to the indigenous cows and buffalos. On the supply side, state-wise 5-years average production of key ingredients for cattle feed has been worked out (Figs.4.6 and Fig.4.7). Maize being one of the important ingredients, the states dominating in its production are Karnataka, Telangana, Maharashtra and Bihar. Rice bran and De-oiled rice bran which form the bulk of the feed are available in almost all the states; the leading states being Uttar Pradesh and West Bengal. Different states have different protein source ingredients, like Gujarat with Groundnut and cotton, Madhya Pradesh with soya bean, and Rajasthan with rapeseed and mustard. These states and the nearby states utilize those sources to add in the compound feed.

Table 4.7. Status of feed production, 2016

Level	No. of Manufacturers	Production(MT)	Share (%)
Global (All Feed)	30,090	1032.2	
India (All Feed)	909	31.4	3.04*
India (Cattle Feed)	353	9.8	31.2#
*Share of India (All Feed) in Global (All Feed)			
#Share of India (Cattle Feed) in India (All Feed)			

Source: Altech, Kemin, Author's estimation

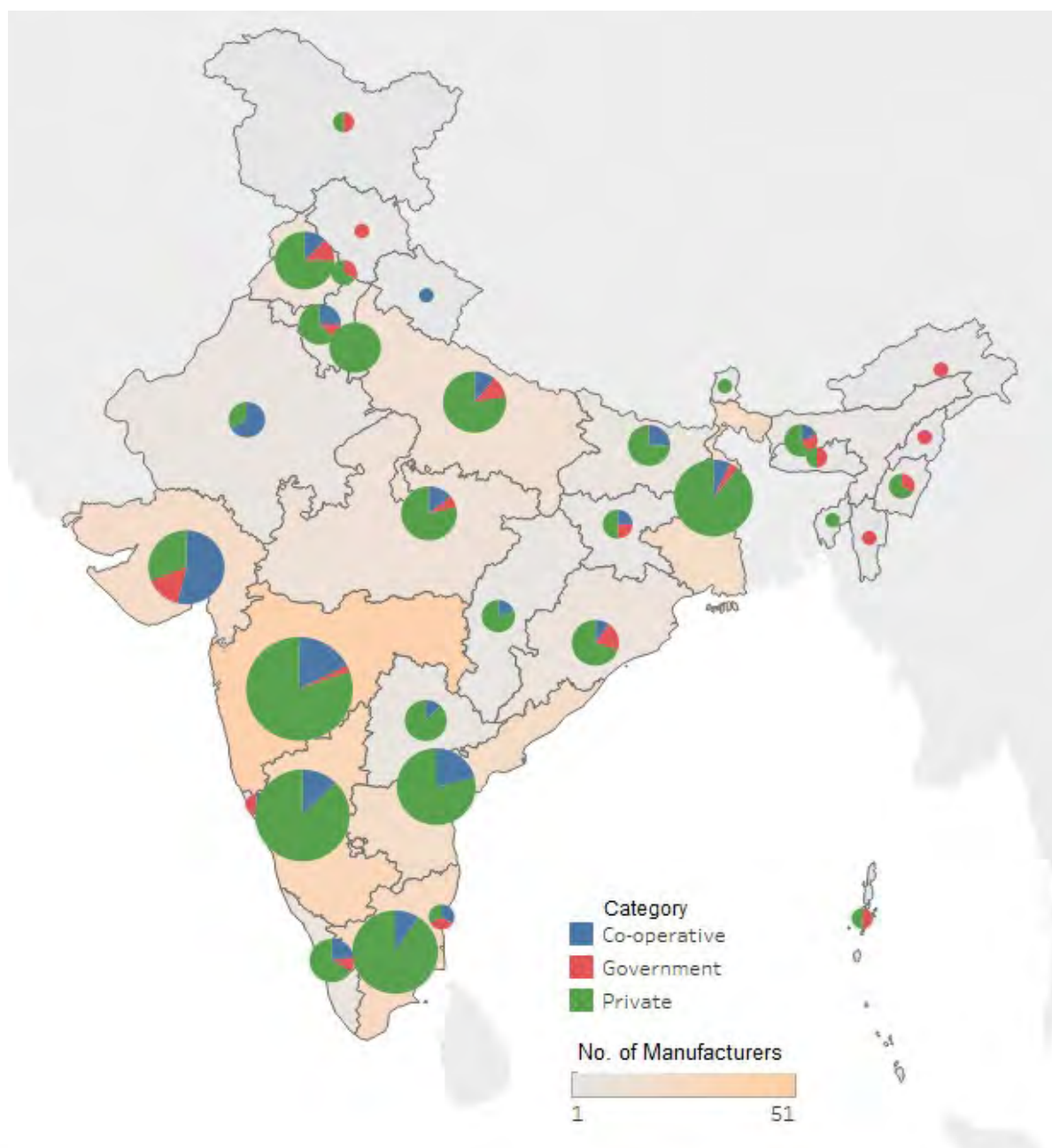
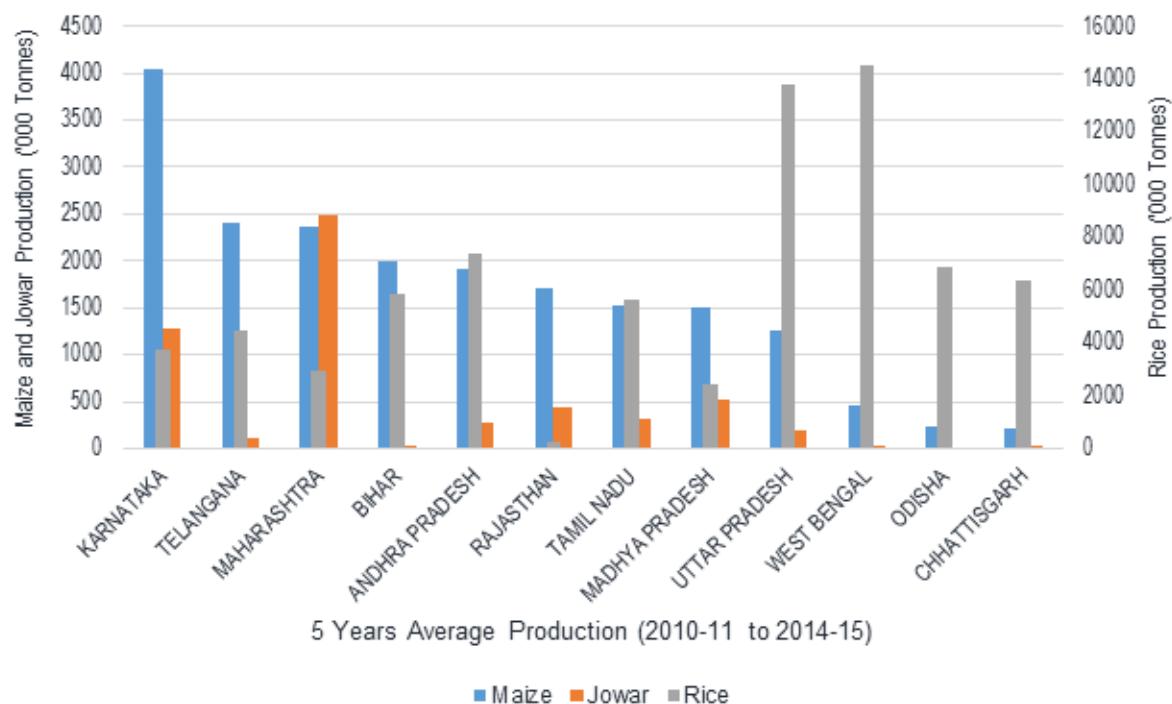
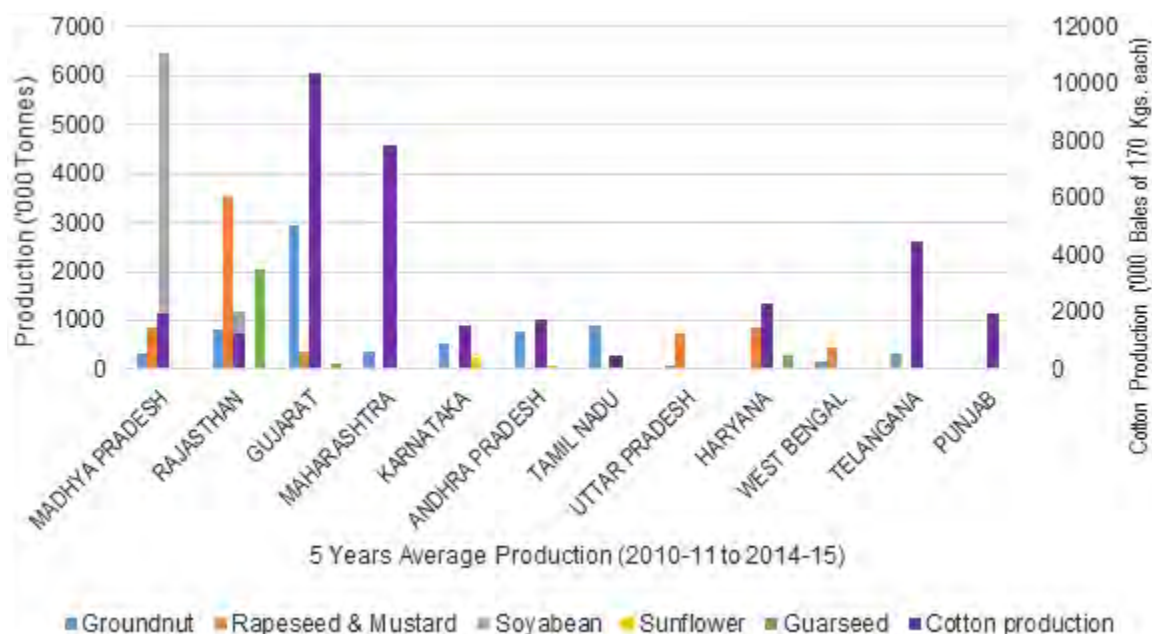


Fig.4.4. State-wise distribution of cattle feed manufacturers



Note: Data extracted from Ministry of Agriculture and Farmers Welfare

Fig.4.5. State-wise energy source for cattle feed



Note: Data extracted from Ministry of Agriculture and Farmers Welfare

Fig. 4.6. State-wise protein source for cattle feed

4.2.9. Asynchronous Learning in Agricultural Higher Education through MOOCs: A Case Study Research

The research project was taken up to broadly understand how asynchronous learning takes place through Massive Open Online Courses, to analyze the critical factors of success, identify suitable courses for MOOCs in Agri. Education, and suggest a framework for development of such courses. The perceptions and expectations of MOOC in agricultural education were ascertained through an online questionnaire from 1003 registered users before the launch of MOOC course, “Competency enhancement for effective teaching”.

Learners’ Educational Background: Majority were postgraduates (492) and Doctorates (469) and a few graduates (42) participated in the programme representing 12 different domains—agriculture, business, commerce, computer applications, dairy science, engineering, fishery, forestry, general science, horticulture, veterinary science and others. Overall, pictures portray that courses on agriculture and allied sciences were attended by 69.28% were from agriculture allied participants and the remaining 30.72% were from other domains.

Institutional representativeness: About 122

organisations across the country were benefitted by the course, out of which 44 were Agricultural Universities, 11 Veterinary Universities, 2 Fishery Universities, and 2 Horticulture Universities, apart from other organisations, like, business schools, engineering colleges, government / general organisations, medical colleges etc.

Stage of Career: Among the targeted trainees, majority (57.95%) were at the beginning of the career, about 19% were post graduate and doctoral students, who are aspiring to be in faculty in near future and the remaining 23 % constituted middle level to senior level faculty and administrators.

Content Delivery: Preferred tools for MOOC were desktops (60.8%), followed by laptops (50.0%), smart phones (31.8%) and a very few preferred tablets (5.3%). Among Social media tools, majority (79.75%) preferred WhatsApp over Facebook (49.58%). Power point presentations (97.90%), followed by images (96.49%), pdf (95.39%), video (95.09%), animated objects (94.12%), text (93.56%), audio (83.26%), were other preferred tools, in that order.

Expectations from MOOC: The expectations of learners reflected broadly on convenience of learning, resources, networking, technology, change in ASK (Attitude, Skill and Knowledge) (Fig.4.7).

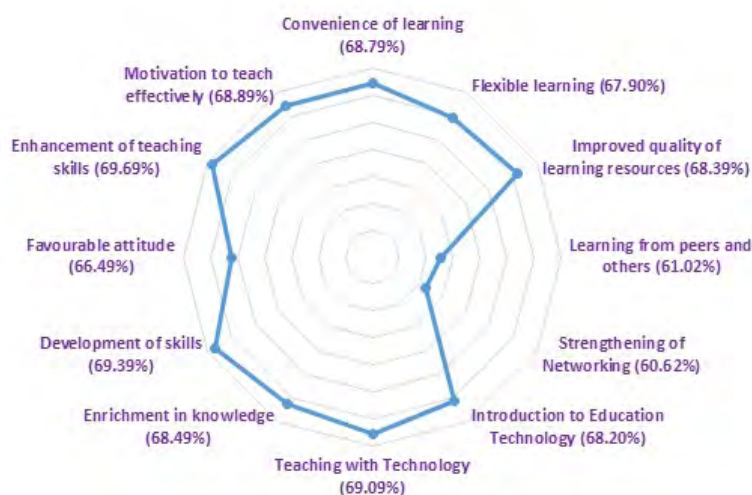


Fig. 4.7. Expectations from MOOC

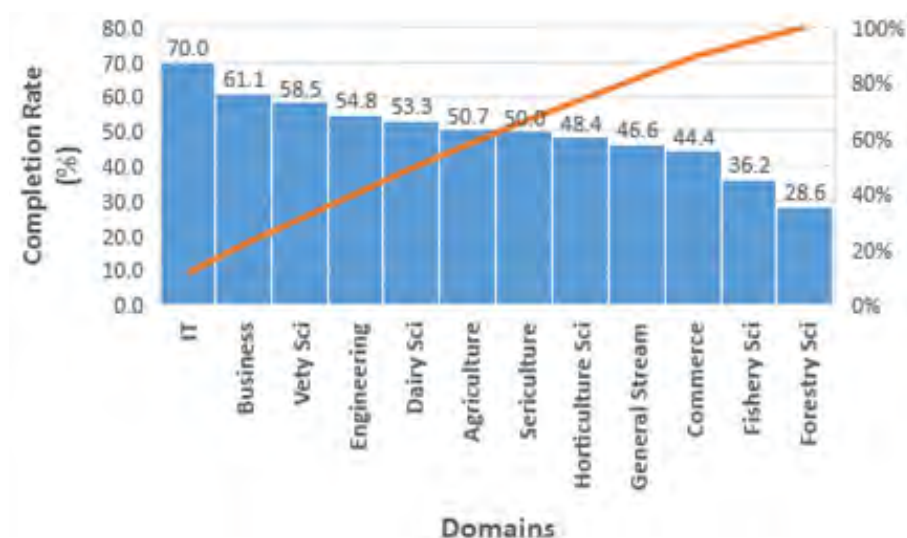


Fig.4.8. MOOC completion rates across domains

MOOC Success rate: Overall MOOC registered a significant success rate of 52.5% and very prominently more than 50% in Information Technology, Business Management, Veterinary Sciences, Engineering, Dairy Science, Agriculture and Sericulture (Fig.4.8) domains.

4.3. Externally Funded Research Projects

4.3.1. Technology Enhanced Learning in Agricultural Education

The project envisages developing, standardizing and implementing appropriate methodology for creating digital educational content that can have multiple

modes of learning contexts and stakeholders. TEL methodology was successfully standardized by establishing a 'state of art' technology enhanced learning resource center, where contents for multiple contexts like MOOC and distance education courses were developed and tested in real time by integrating them in an online learning environment. The entire sequence of content development to consumption was done with high quality digital resources and less manpower requirement. Some of the outputs are shown in Table 4.8. As shown in the Table, there has been a steady increase in activity of digital video and online course development compared to previous year besides the project helping to generate revenue.

Table 4.8. TELAgE outputs

Outputs at a Glance	Years		% change
	2015	2016	
Number of Video Hours	184	436	136
Number of Video Modules	72	233	224
Number of online courses	3	3	-
Number of MOOC	1	2	100
Number of certificate programs	-	1	100
National Visitors to lab	155	705	355
International Visitors to lab	123	150	22
Average hits per day	372	1001	169
Revenue generated (Rs. in lakhs)	-	6.1	-
No. of other projects being supported	-	2	-

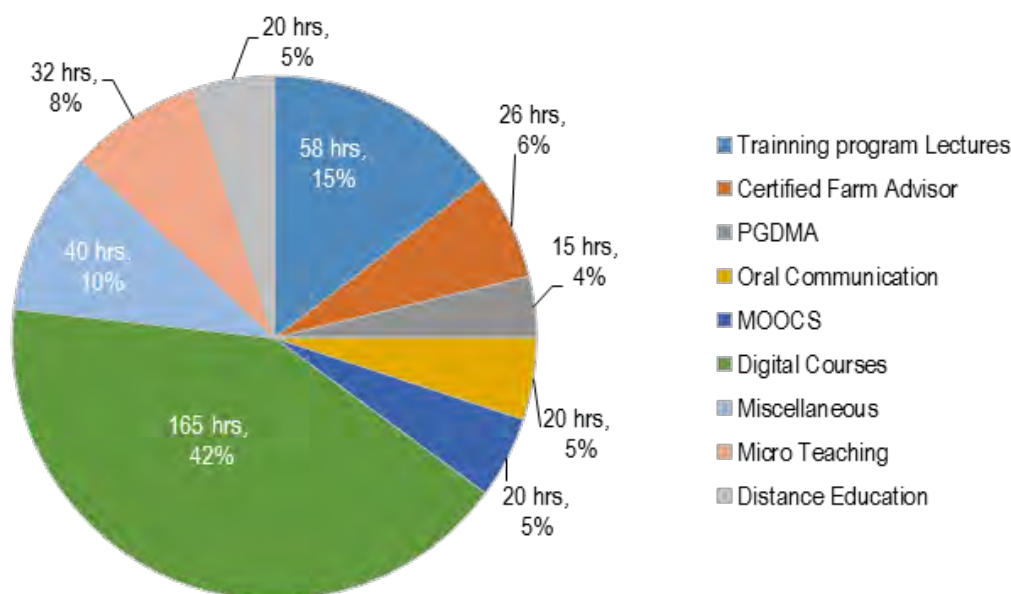


Fig.4.9. Digital content production (Category-wise, number of hours and extent in percentage of total production) accomplished during 2016-17.

Salient Achievements

- Online Distance Education Programme was offered for Teaching Excellence for the first time.
- Digital content development in Certified Farm Advisor course in consultancy mode was made for MANAGE with a revenue generation of Rs. 3.4 lakhs (Fig.4.9).
- Complete management (Course administration, development, management, evaluation and certification) of Massive Open Online Course (MOOC) on "Competency Enhancement for Effective Teaching" was accomplished for the second time in ICAR using open source technologies. A revenue of Rs. 2.26 lakhs was generated.
- Vocational education courseware on Integrated Pest Management was developed.
- Digital courses in veterinary science (Veterinary Anatomy and Parasitology) were developed and the development of other courses are in progress.

4.3.2. Socio-Economic Analysis of Finger Millets in India

The study was undertaken to estimate the increasing rates in area, production and productivity of finger millet (ragi) crop and its trend and instability in the study area; to estimate market demand and consumer preference for ragi; to assess the value chain of ragi and to analyse its market competitiveness and market integration.

During the period under report, the team had taken up the study on the socio-economic profile of the ragi cultivators, land holding pattern, cropping pattern, the production practices, varieties used, labour utilization pattern, etc. Complete mapping of production technology of ragi was done for the three major states of ragi production, viz., Tamil Nadu (TN), Maharashtra (MH) and Andhra Pradesh (AP), through primary survey of 600 farmers drawn from the study area. Karnataka (KA), the top most state in ragi cultivation, was also being studied by the partners from UAS, Bangalore.

The area under ragi and production showed negative growth rates across the states during the period from 1984-85 to 2013-14. Odisha and Jharkhand registered the maximum declines in terms of both area and production. KA, TN, MH and Uttarakhand registered marginal growth rates due to increase in consumption of ragi.

Input use pattern in ragi cultivation

The results in (Table 4.9.) indicate that there exist wide variations in the use of different inputs by ragi cultivators across the states. The seed rate in Maharashtra was very low due to cultivation of transplanted ragi while other states followed direct sowing method. Manual labour usage was very high in Maharashtra and on the contrary, Tamil Nadu relies more on machine labour for ragi cultivation. Farm yard manure usage was higher in Maharashtra and Andhra Pradesh, while chemical fertilizer usage was higher in Tamil Nadu. Pesticide usage was recorded only in Maharashtra among the three states studied.

Cost of cultivation of ragi

Cost components were computed using the standard CCPC methodology, followed by Ministry of Agriculture, for ragi in the three states (Table 4.10). The total cost (Cost C) was worked out to be Rs. 41,812, Rs. 53,228 and Rs. 37,491 per ha in TN, MH and AP, respectively, imputed cost of family labour being the major component.

The income measures were also worked out to understand the importance of this crop in the lives of ragi farmers. It was found that the returns from ragi production was high among farmers of AP, followed by TN and MH. However, if we impute the value of own land, then the income is negative for both MH and TN. Similarly, if we impute the value of family labour, then the ragi cultivation incurs loss in all studied areas. It implies that ragi growers don't have any other alternative gainful employment opportunity in the study area and the land may not be of any use to cultivate alternative crops in the prevailing agro-climatic conditions.

Table 4.9. Input use pattern in ragi cultivation in the study area

No.	Input usage	Tamil Nadu	Maharashtra	Andhra Pradesh
1	Seed quantity (kg/ha)	30.73	5.79	14.36
2	Family labour (days/ha)	27	95	59
3	Hired labour (days/ha)	47	74	47
4	Bullock labour (paid days/ha)	1.32	5.21	6.38
5	Machine labour (days/ha)	1.74	0.67	0.38
6	Manure (kg/ha)	1488	4513	3671
7	Fertilizers (kg/ha)	320	275	37
8	Pesticides (kg/ha)	0	1062	0

Table 4.10. Costs and returns in ragi cultivation

(₹/Ha)

Parameters	Tamil Nadu	Maharashtra	Andhra Pradesh
Cost A1	28,926	26,218	13,659
Cost A2	30,165	26,218	13,659
Cost B	30,575	27,744	14,869
Cost C	41,195	48,680	25,873
Gross returns	33,105	21,956	22,785
Returns over Cost A1	4,179	-4,262	9,126
Returns over Cost A2	2,940	-4,262	9,126
Returns over Cost B	2,530	-5,788	7,916
Returns over Cost C	-8,090	-26,724	-3,088

Marketing channels for ragi in Tamil Nadu

The channels of marketing for ragi grain and its flour were mapped and it was found that there were seven channels, five for grains and two for flour (single brand) in one of the study states, TN. The channels are given below:

Grains:

- Farmer–Consumer
- Farmer–Village Merchant–Consumer
- Farmer–Village Merchant–Wholesaler–Super Market–Consumer
- Farmer–Village Merchant–Primary Wholesaler–Secondary Wholesaler–Retailer–Consumer
- Farmer–Village Merchant–Agent–Secondary Wholesaler–Retailer–Consumer

Flour

- Farmer–Village Merchant–Primary Wholesaler–Processor–Secondary Wholesaler–Retailer–Consumer
- Farmer–Village Merchant–Wholesaler–Processor–Super Market–Consumer

Integration of major ragi markets

For the study on the integration of major ragi markets, the markets were selected based on the quantity arrivals and the distance between the markets, so as to assess the extent of their spatial integration in transmitting the prices. All the selected markets, viz., Chintamani, Gunpur, Kovilpatti, Markapur, Shimoga, and Thirukovilur,

except Mahabubnagar, were found to be integrated over a long period.

4.3.3. Enhancement of Teaching Competency through Distance Learning

A questionnaire had been prepared with various parameters to evaluate the feasibility of distance education mode adopted under the project. The questionnaire was sent to all the 59 participants for the course evaluation along with different parameters, namely, self-assessment of the participant on the skill and knowledge level, structural arrangement of the course materials, methodology followed for discussion forum, submission of assignments, quality of video tutorial, accessibility of online course content, evaluation pattern etc. The overall analysis on both online mode (19 participants) and offline mode (40 participants) indicated that the course materials, contents, videos etc. were very useful and it provided the inputs for enhancing their competency in teaching. The analysis on self-assessment of the participants indicated that more than 50 per cent of the respondents acquired skill/acknowledge to enhance teaching excellence and expressed usefulness of the course for teaching purpose. The feedback received from the offline mode respondents suggested that the course content in hardcopy may be supported with digital content and video as a supplementary input, to enhance their competency instead of standalone mode (online/offline) of delivery.

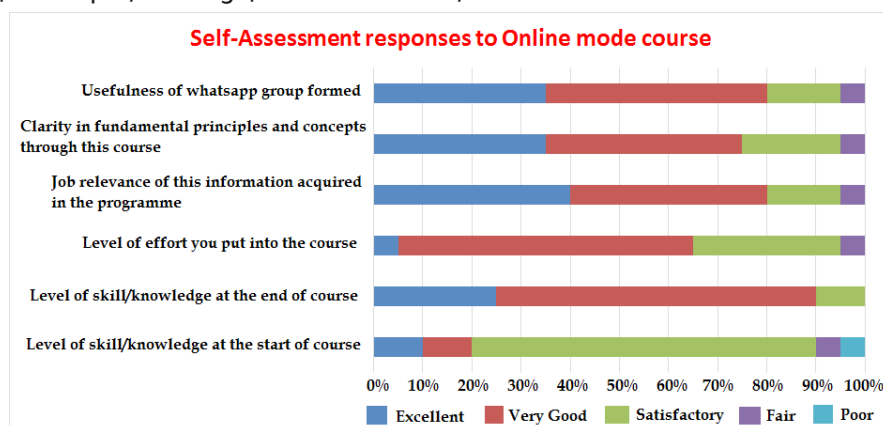


Fig.4.11. Online results

4.3.4. KRISHI-ICAR Research Data Repository for Knowledge Management

The project is carried out jointly by ICAR-IASRI, ICAR-IARI, ICAR-NBSSLUP, ICAR-CRIDA and ICAR-CMFRI. The major objectives of the project are to develop knowledge repositories related to proven technologies and publications; develop research data repository and standardization of analysis of data; and create geo-portal and develop agricultural knowledge portal to provide access and manage knowledge repositories. Six repositories were planned, namely, Experimental Data Repository, Survey Data Repository, Observational Data Repository, Publication Repository, Technology Repository and Geo-portal. A portal, KRISHI (www.krishi.icar.gov.in) is available to provide access to the repository.

Publication repository

A fully functional publication repository is now available (<http://krishi.icar.gov.in/jspui/>) for use by all the ICAR institutes. The publication repository was developed using open source software, DSpace. The 15 element Dublin Core, which is a standard metadata for resource description and formally endorsed in ISO Standard 15836:2009, ANSI/NISO

and IETF RFC 5013 (2007), was used as a base to develop ICAR-publication repository. The repository has 27 elements including nine optional elements. These 29 elements describe the information about the authors, their affiliations, ICAR subject matter division, project details, funding details etc. For documents which are meant for restricted circulations, provision for regulating access has been incorporated.

All submissions to ICAR publication repository are made available once they are approved by the Officer-in-charge, Data Management of respective institute. The publication repository was opened for submission during January, 2017. A screenshot of ICAR Publication repository is shown in Fig. 4.12.

Data inventory repository

The data inventory repository aims at identifying, organizing and describing various datasets available at different ICAR institutes. Data Inventory repository was also created in DSpace. The metadata for data inventory consists of about 34 elements. These elements describe basic information about data, ownership of the data, files if any, data rights and other related information. The data inventory repository has provision for regulating access to protect the data.

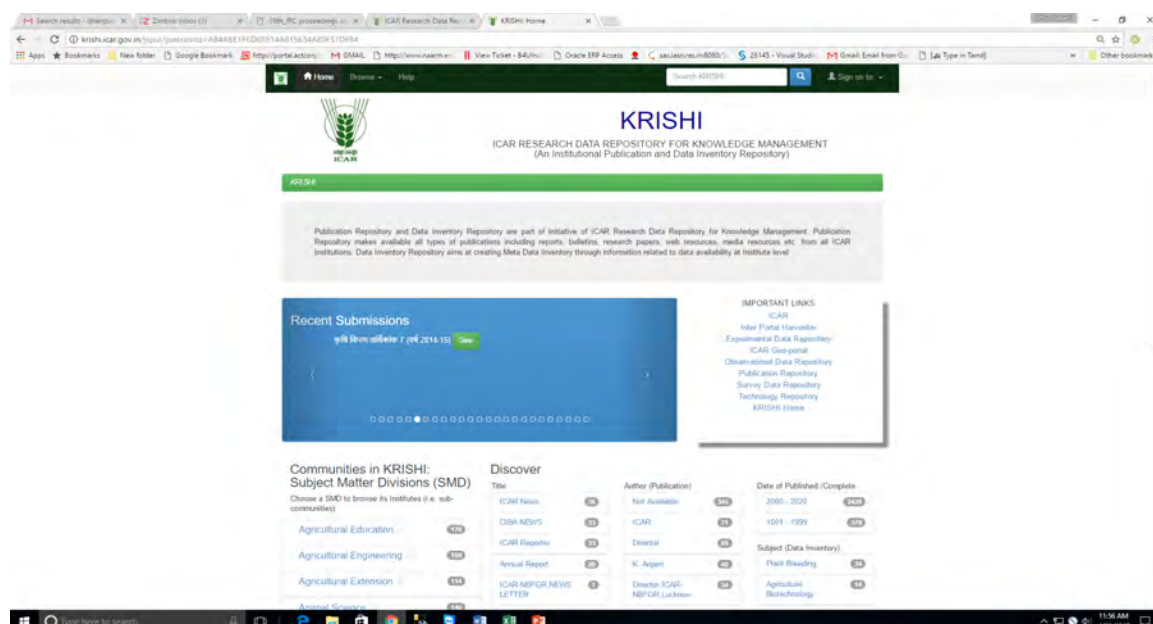


Fig.4.12. Screenshot of publication repository

4.3.5. Establishment of Agri-Business Incubation (ABI) Centre

The objectives of this project were to provide “help desk” services for ABI’s in all aspects w.r.t technology commercialization, incubation, and entrepreneurship development; to organize capacity building and training on technology transfer, IP management, Business Incubation, entrepreneurship development; and to scout the commercially viable technologies developed at various research institutions in NARES and provide congenial ecosystem to commercialize these technologies.

A Scopus study was carried out to review the existing system and practices of commercialization and incubation of technology in NARES and to suggest a road map for sustainability of incubation system for acceleration of Agri-based start-ups and Agri-entrepreneurship. The study indicates numerous enhanced opportunities for nurturing and building new enabling platforms, such as, incubation and acceleration for agri-business and Agri-entrepreneurship in the country. It is, therefore, crucial that NARES takes forward initial success as gained during the last 10 years in a more objective manner and becomes a part of larger canvas operating in the country. Forging formal links and developing partnership with schemes and projects operating under other agencies of Govt (DST, DBT), successful NGOs, professional bodies and associations are the ways to take forward the early initiatives and success gained. Incubation and accelerating technology transfer process can trigger more Agri-based start-ups, and attract more entrepreneurs across the country. For a long-term sustainability, it might be necessary to incorporate more functional and financial autonomy to accelerate incubation and entrepreneurship in the agribusiness ecosystem.

4.3.6. Commercialization of Agricultural Technology Scheme (IPTM-ZTMC)

The objectives of this study was to understand the effectiveness of various capacity building

programmes on IP and TM initiated by NAARM, to assess the outcome of these initiatives in professional accomplishments and to identify the future steps to be taken for capacity building in the area of IP and TM with the focus to enhance the entrepreneurship and innovation for employment and livelihood.

The data were collected from participants using web-based questionnaire. A questionnaire was developed in google forms and mailed to the participants. The study used a mixed approach to analyse the data. The quantitative data collected for basic information and scales were summarized using tabular analysis, percentage values and graphs. The qualitative data were analysed using content analysis, based on the statement made by the respondents. The qualitative data were also quantified and visualized using word cloud (<https://worditout.com/>) and Microsoft Power BI (<https://powerbi.microsoft.com/en-us/>).

The study indicated the ways in which PGDTMA and full-time course participants had utilised their knowledge. Most of the IP and TM full-time participants were handling the legal divisions and were utilizing the knowledge they had gained for IP filing, legal issues, IP management and technology valuation. The PGDTMA respondents were involved mostly in licensing technologies, IP Management and technology evaluation.

The ways in which the IP and TM training respondents had utilized the knowledge gained are given in Fig.4.14. About 78% of the respondents utilized the knowledge gained for developing new project proposals and for issues related to projects. The attributes of the impact of the course as a utility in handling the IP and TM portfolio (Fig.4.15), career progression (Fig.4.16) and ways of career progression (Fig.4.17) were also studied. About 45% of PGD TMA respondents stated that the course had resulted in getting new projects and helped in career progression.

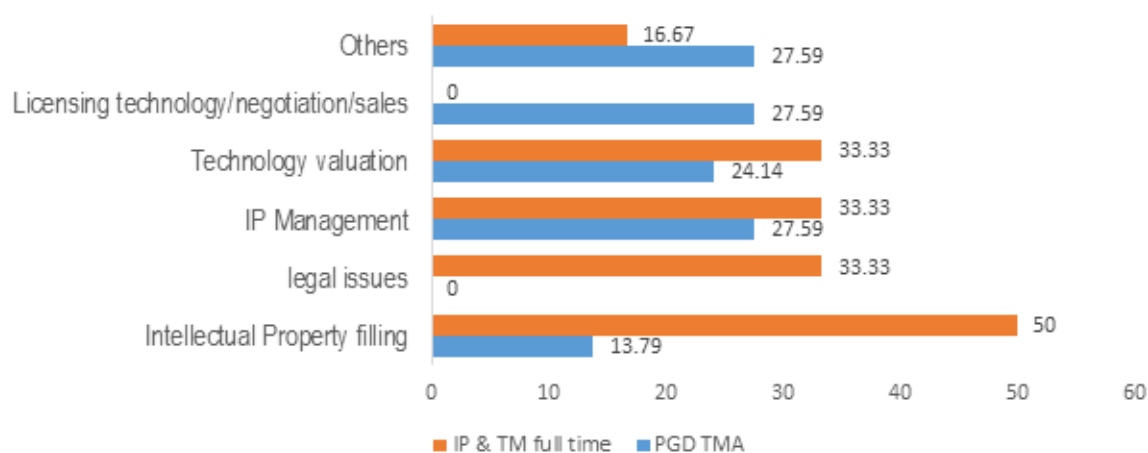


Fig.4.13. Utilization of knowledge gained through the course in profession by PGDTMA and full time respondents

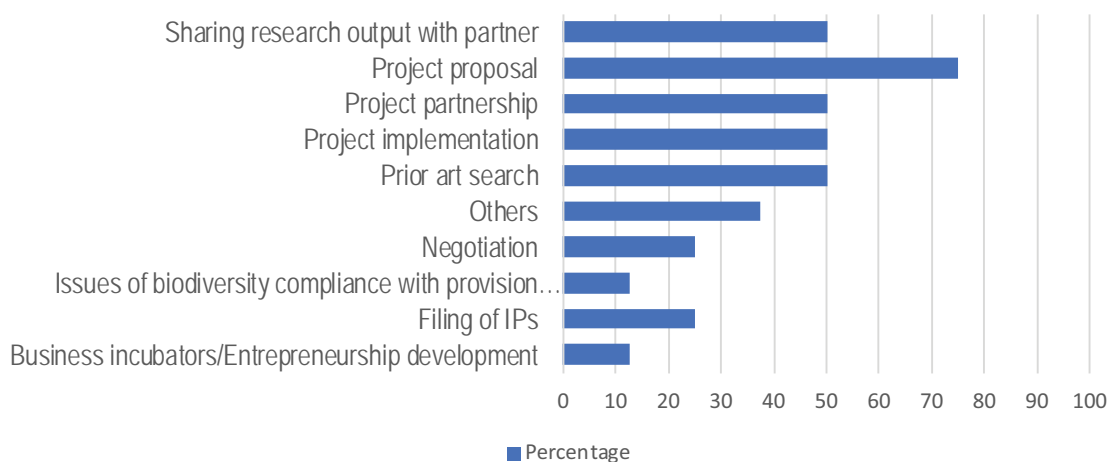


Fig.4.14. Utilization of knowledge gained through the course in profession by IP and TM training respondents

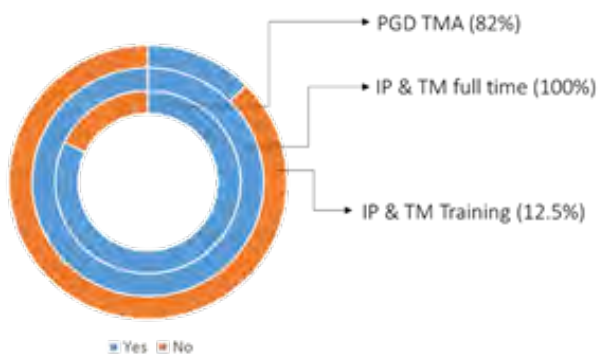


Fig.4.15. Utility of the course in handling IP and TM in organization

Source: Drawn by authors based on data from online survey

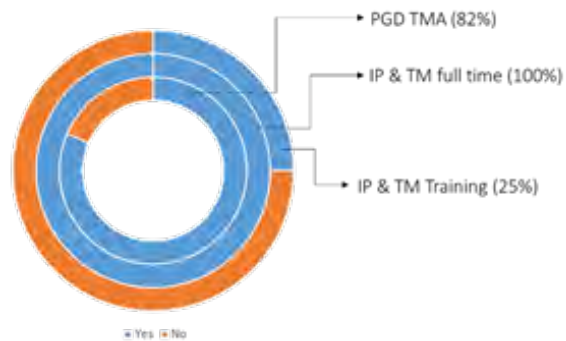


Fig.4.16. Impact of the course on career progression

Source: Drawn by authors based on data from online survey

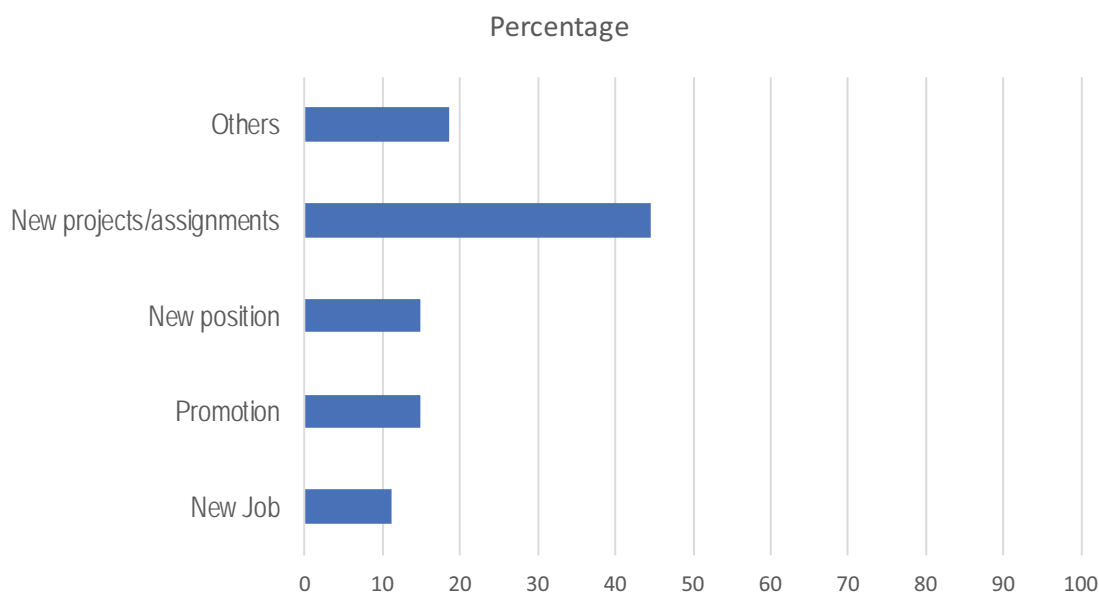
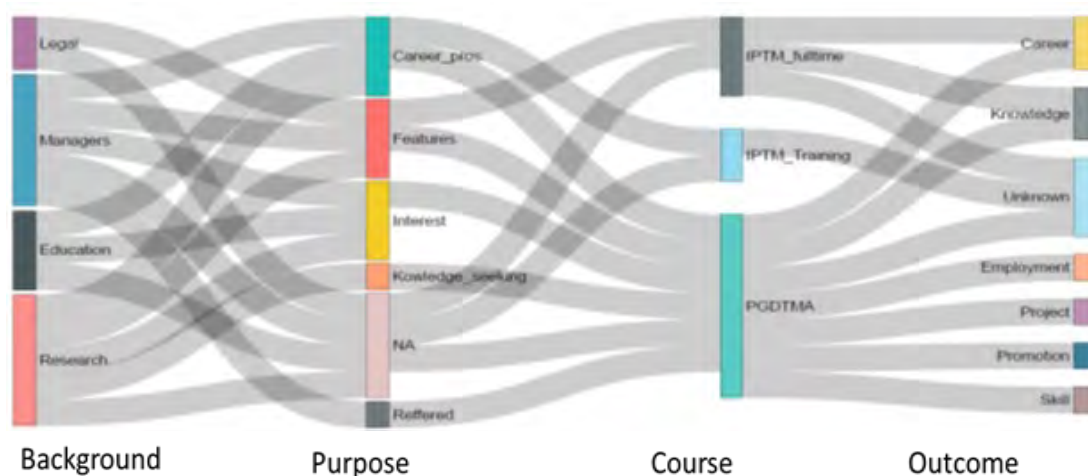


Fig.4.17. Ways of career progression

An impact pathway as a Sankey graph (using Power BI), showing the impact pathway of IP and TM programmes offered by ICAR-NAARM, was drawn (Fig. 4.18). The results show that the background, motivation and the course impact the outcomes. The results also show that the PGDTMA had a wider background, covering audience with wider motivation and outcomes.

The study, carried out as a mid-course analysis to understand whether the objectives of the IP and TM course and programmes have been met, showed a positive indication. The Academy had evolved,

from the mandates of sensitization and building awareness, to offering diploma courses and training programmes. It is evident that the training had led to development of enormous human resources in the NARES, which is in alignment with the ICAR's IP Policy 2006. It's important that the activity needs to be continued for developing higher level professionals in the evolving domain of IP and TM, in alignment with the National IPR Policy 2016. The full-time programme of the Academy has developed 16 hard core IP professionals. However, based on the public demand from the working professionals in the industry, the distance learning



programme was offered (PGD TMA). The six years of the programme had led to creating a large pool of professionals, who are skilled and were able to gain careers, projects and promotions.

4.3.7. Impact of ICT on Agricultural Education in India

Education Division of the Indian Council of Agricultural Research has spent significant amounts in establishment of e-libraries, SMART classrooms, SMART seminar halls, strengthening of computer laboratories and Educational Technology Cells in State Agricultural Universities of the country, apart from developing e-courses, platforms like *e-granth* etc. In spite of all these efforts, there still exists a gap between the efforts made in the area of ICT at the ICAR level and actual implementation in the teaching-learning process in agricultural education in our universities. Thus, an attempt was made to find out the status of ICT tools and their impact in teaching-learning situation. The study also attempted to identify the factors that affect the adoption of ICT tools and thereby to develop a future roadmap which would lead to strengthening of ICT integration in agricultural higher education.

Data were collected from 20 Deans, 327 teachers and 1438 students of the State Agricultural Universities of northern India through on-line and off-line questionnaires, focused group discussions, informal discussions and observations. Data were also collected through secondary sources, like, websites of concerned universities, journals etc.

It was revealed that use of ICTs in administrative procedures was remarkable due to presence of ample infrastructural facilities but its integration in the mode of course delivery was not adequate. Educational Technology Cells, SMART classrooms, SMART seminar halls, computer laboratories and e-libraries were of integral part of most universities but internet speed was not up to the requirement. All three categories of respondents had working knowledge in computers, Wi-Fi and smart phones and were using them daily for educational purpose, whereas, e-portfolio was the ICT tool about which people were least aware. The administrators linked

ICTs with improvement in governance leading to transparency and accountability, whereas, teachers said that ICTs bring about improvement in academic development. ICTs were reported to be impacting students in terms of fetching jobs and opportunities for higher education. Deans, teachers and students found the use of ICTs to be time saving and according to them ICTs make the teaching-learning and administrative process easier but were a bit skeptical about the accuracy of its content. The perceived negative impact of ICT on teaching-learning was deduced from the reluctance of students to attend classes, insufficient use of library, and overdependence of teachers and students on ICT, leading to plagiarism. Excessive use of social media, like, WhatsApp and Facebook were causing health problems; thus reducing personal interaction and physical activity. Minimal Infrastructural facilities, slow internet speed and inadequate training were the major factors affecting the adoption of ICT in agricultural education.

On the basis of the findings, it is suggested that ICT course, offered at Under Graduate level, should be basic to advance level in subsequent years; presence of SMART classrooms should be ensured in all agricultural universities in true sense; and high-speed internet facilities, establishment of Directorate of IT/ICT in all State Agricultural Universities, uniformity in the content of all SAU websites and their periodical updating should be ensured. There is an urgent need for authentication of e-mail communication in agricultural universities to avoid the double burden of ensuring soft, as well as, hard copies. Development of e-courses and mobile applications related to agricultural education is the need of the hour. Virtual classrooms are the only pathways to tackle the issue of faculty crunch in agricultural universities. Periodic trainings related to Information and Communication Technology applications in education should be organized for teachers, students and administrative staff alike for better integration of ICT into teaching, learning and administrative process of SAUs.

4.3.8. Management and Impact Assessment of Farmer FIRST Project

The study has been initiated in order to delineate the development of research process, methodologies of impact assessment, content development and database creation; assess the impact of technological intervention of *Farmer FIRST* Programme (FFP); design and develop the database and decision support system for FFP; and enhance the capacity of researchers/ faculty in methodologies FFP implementation.

One National Level Review cum Sensitization workshop for FFP was conducted for the institutes implementing FFP during 18-19 March 2017 and the training needs of the Farmer FIRST implementing institutes were assessed.

4.4. Contractual / Consultancy Research Projects

4.4.1. Environmental Impact Assessment of Tobacco Curing

The project was undertaken with the overall objective of assessing the environmental impact of tobacco curing in Andhra Pradesh and Karnataka. However, the study was undertaken with the specific objectives of surveying the sources and

types of wood used for curing of tobacco; determining the wood consumption of flue curing; assessing the impact of tobacco curing on the forest cover; studying the supply chains of wood fuel for curing, and exploring the feasibility of identifying energy-efficient tobacco curing to reduce the dependence on fuel wood. Based on the predominance of tobacco cultivation, two states viz., Andhra Pradesh and Karnataka, were chosen to conduct the study.

The study was initiated in March 2017 and a comprehensive literature review on environmental impact of tobacco curing, impact on health of forest and alternative technologies of tobacco curing was made. Sampling methodology have been finalized and Prakasam and West Godavari districts in Andhra Pradesh, and Hasan and Mysore districts in Karnataka state were selected based on the scale of tobacco cultivation. For undertaking the main survey, two separate questionnaires for the two states were prepared to elicit information on tobacco curing and to achieve the specific objectives of the study. Pilot survey and mock interviews were conducted in Ongole, Rajahmundry, Devarapalli, Gopalapuram and Koyyalagudem on various aspects of reducing the environmental impact of tobacco cultivation,



Group photo of participants of Farmer FIRST project review-cum-sensitization workshop

curing, making of tobacco briquettes from agro-waste, auctioning, reducing the firewood usage, alternative technologies of tobacco curing etc. Based on the information received and review made, the questionnaires were refined and made ready for the main survey in Andhra Pradesh and Karnataka states. Measures adopted by ITC and Tobacco Boards, to encourage farmers to grow their own fuel in a bid to move from traditional to improved barns with a view to increasing the energy efficiency of tobacco curing were recorded in the survey sites.

4.4.2. Socio-economic Study on Community-Based Seed Producers (CBSP) Groups of Women SHG and Group Model in Uttar Pradesh

The project on Community-based Seed Producers (CBSP) groups of women SHG, and group model in Uttar Pradesh was aimed at understanding the factors influencing the selection of seed producers in the community-based seed producer groups, understanding the existence of power parity inside a group and assessing whether those factors affected successful seed production.

The study revealed that seed producers belonged to such socio-economically backward classes, but were better than their peers. The empirical analysis showed that various factors (individual and social), influencing the power in the group, had influenced the decision making on selection.

4.4.3. Developing Guidelines and Methodologies for Socio-Economic Assessment of LMOs

In India so far, the guidelines and methodologies for socio-economic evaluation of (Living Modified Organisms) LMOs cultivation and their entry into

the food chain of animals / humans have not been developed and tested. RIS has partnered with six other institutions. ICAR-NAARM is one of the partners, who is entrusted with the work pertaining to Telangana region to fulfil the objectives of the project. The study has been conducted in Nalgonda District of Telangana where both the crops viz., Maize and Brinjal are grown.

Total variable costs of Brinjal and maize cultivation were Rs. 91,188/- and 28,966/-, respectively, per hectare. The major portion of the cost is on insecticides -- 16.94% and in weeding -14.24% (including cost of herbicide, its application and manual weeding) in brinjal. The sensitive analysis reflects that there should also be yield advantage in both brinjal and maize, if benefit:cost ratio is to be maintained at present level, assuming that the cost of seeds of GM crop will be more as compared to conventional crops. Farmers were explained about the desired LMO (pest and weed tolerant traits for brinjal and maize, respectively) and were asked about their willingness to pay for the seed. 63.2% and 41.6% of brinjal and maize farmers, respectively, were willing to pay more than 50% of seed cost as it not only would give better economic return but also would improve their lifestyle and reduce the cost of health-related problems.

Farmers really wanted alternative crop varieties (HYV, Hybrid, GM etc.) in different crops and were willing to pay more for seed, provided that crop would increase the profitability of the farming. Farmers' opinion study showed that they are ready to adopt new technologies that would enhance profitability and reduce labour requirement. They also feel that they should be made aware of the pros and cons properly before introducing such crops so that they can take all precautions that are needed to raise a genetically modified crop.



Chapter - 5
New Initiatives



New Initiatives

5.1. Centre for Agri-Innovation

In tandem with approved targets under 12th Plan, the Academy has established a Centre for Agri-Innovation (CAI) to promote Agri-innovation and Agri-entrepreneurship in the National Agricultural Research and Education System (NARES). The Centre was inaugurated by Dr. T Mohapatra, Hon'ble Secy. (DARE) and DG (ICAR) on 25th June, 2016.

Through the Centre for Agri-Innovation, the Academy strives to reach and involve every stakeholder of agri-value chain in the National Agricultural Innovation System for technology creation, its transfer and foster Agri entrepreneurship in the NARES. The establishment of the Center is with following objectives:

- i. To organize training & capacity building programs for the professionals from ICAR Research Institutes & SAU Agri-business Incubations on technology transfer, IP management, Business Incubation, entrepreneurship development and investment.
- ii. To develop policy framework for governance

and coordination of technology development and commercialization in NARES and incubation development for agribusiness entrepreneurs,

- iii. To provide a platform for up- streaming and down-streaming of technologies through advisory services for IP and technology management leading to entrepreneurship development

Targeted work through this centre includes developing modules, guidelines and other form of learning materials for capacity building of the network members on issues such as effective management of technologies and IP assets of the NARES; ways to improve commercial potential of research projects through foresight studies; analysis/valuation of the commercial potential of inventions/IP; identification of licensing partners; assist in monitoring of IP-rights and license agreements; develop marketing instruments, provide seed support, and organize accelerator programme. Further, the centre seeks to provide incubation support to prospective innovators and Agri-start-ups.



Inauguration of Centre for Agri Innovation by Dr. Trilochan Mohapatra, Secretary (DARE) & DG (ICAR)

5.1.1. Services offered by the Incubation Centre

Table 5.1. Services offered by the Incubation Centre

Capacity Building	<ul style="list-style-type: none"> • Management development & entrepreneurship development programs • Skill based trainings • Customized review meetings, seminars & conferences
Incubation Services	<ul style="list-style-type: none"> • Infrastructure, office, on farm testing • Linkages for technology & up scaling • Mentoring, guidance & support for startups
Business Services	<ul style="list-style-type: none"> • Business Plan formulation • Product promotion & branding • Business Analytics
Technology Portfolio management	<ul style="list-style-type: none"> • Intellectual property portfolio • Product life cycle analytics • Licensing & Validation of technology
Regulatory Services	<ul style="list-style-type: none"> • Protocols for company registration & related issues • Advisory services on agro bio diversity, environmental & other compliances

Currently the Centre houses three projects namely: (i) ICAR-sponsored IP Management and Transfer/ Commercialization of Agricultural Technology Scheme (ITMU) and Zonal Technology Management Centre (ZTMC), (ii) ICAR-sponsored Establishment

of Agri-Business Incubation (ABI) Centres under XII Plan Scheme for National Agriculture Innovation Fund (NAIF), and (iii) a-IDEA, Technology Business Incubator of NAARM funded by NSTEB, DST.

5.1.2. Activities of the Incubation Center of NAARM

The Centre has organized several events which included technology showcases, exhibitions and start-up events, pitching events across various forums on a pan-India basis during the year of report (Table 5.2).

Additionally, the Centre has developed basic infrastructure for an incubation center and strong network of Venture Capital agencies, Angel investors, HNIs, fund raising advisors, tech transfer professionals and also developed protocols for funding support mechanisms through seed funds







raised from NSTEDB, DST and other schemes. These efforts have led to building of a strong incubation programme to support Agri- entrepreneurs and startups. Currently, 21 innovative start-ups/ incubates are in operation at pan-India level.

The technology business incubator, a-IDEA of NAARM, is now a recognized incubator for supporting agriculture startups under GoI Startup India initiative 2015, thus creating a platform for entrepreneurs for getting recognized as startups. Currently, the incubator centre at NAARM is hosting 20 agri-startups having different domain areas. (Table 5.3).

Table 5.2. Events conducted by the Incubation Center

Nature of event	No of events conducted	Locations	Reach
Sensitization workshops for Agri Students	3	Ludhiana, Thrissur, Cooch Behar	500+ students in 25 Agriculture universities, undergraduates
Ideation events / Krishi Kalp	1	Hyderabad	100+ students in 20 Management institutes & PG colleges.
Startup Boot Camp/ Startup Samvaad (with partners like Tie-Hyderabad, SIIB, FICCI)	3	Hyderabad (2 events), Pune (1 event)	~ 100 entrepreneurs
Entrepreneurship Development Program	1	Hyderabad	~30+ students
Thinking Re-Boot camp (for Incubatees)	1	Hyderabad	10 incubatee entrepreneurs
Startup 360 degree for Incubates	1	Hyderabad	10 incubatee entrepreneurs
Unconvention Hyderabad with Villgro	2	Hyderabad	~200+ entrepreneurs
Agri-Chat with t-Hub	2	Hyderabad	~ 100 entrepreneurs & Agri enthusiasts
Sensitization of grass root innovator on technology incubation	1	Hyderabad	~ 50 grass root innovators & support to 5 grass root innovators/ farmers/ rural youth in showcasing of their grass root innovations

Table 5.3. Agriculture Startups supported by a-IDEA, Technology Business Incubator of NAARM

No.	Name of the start up	Domain area
1.		Mobile App for crop advisory
2.	CHEERMAP	Automatic customized tea making machine
3.		Smart Irrigation Controller
4.		Quinoa & nutritive millet products
5.		Hyper local ICT platform for precision farming
6.		Bio mimicking Trenching Machine
7.		Urban Roof top farming Kit

No.	Name of the start up	Domain area
8.		Vegetarian Candies & Marshmallows
9.		Rock Bonsai
10.		Market place for Agri inputs
11.		Millet products –Millet flours, Millet Cookies, Millet drinks & Millet batters
12.		A-2 grade cow milk
13.		Hyper spectral aerial (UAV) imagery for pest & disease
14.		Classified ICT portal and app for buyers & sellers dealing with niche commodities
15.		Repellents for wild boars & Birds, Soil conditioners
16.		Roof top farming Kits/ Do it yourself kits for vertical farming in communities
17.		Bio inputs- Bio fertilizers, Bio stimulants, Micronutrients and Botanical pesticides
18.		Micronutrient foliar spray for horticultural crops
19.		Tissue cultured teak plants
20.		Business process automation solution provider in Agriculture

Glimpses of the Incubation Center at NAARM



Training Workshop for stakeholders on incubation



Interaction of startup with Dr. Ramesh Chand, member, NITI Aayog



Boot camps for Startups



Agri chats at t-Hub



Sensitization Workshops & ideation event for pan-India students



Ideation event for students



Sensitization Workshop at Cooch Behar



Sensitization Workshop at KVASU, Thrissur

5.2. TELAgE

5.1.1. Technology Enhanced Learning Resource Centre

Academy has spearheaded the e-learning movement during last decade to enhance quality and access of educational content in agriculture domain. As a follow-up of its initiative on e-learning which resulted in e-course repository for undergraduate streams of agriculture, the Academy has established a state of art technology enhanced learning resource centre which has been instrumental in spreading high end digital content production and management. Having financial support from Education Division of ICAR, the Centre has attracted attention among various stakeholders to develop digital content and management.

The Centre is established for the purpose of developing a comprehensive system where educational content is developed in digital format with high quality, less manpower, less time to develop finished product, and simple pedagogical techniques.

The Centre has been developed with multiple functions like:

- Digital content production
- Virtual classes
- Online courseware production-publishing-management
- MOOC programme comprehensive administration



TELAge Lab facilities

The resource centre has innovatively integrated the best technology software and hardware options for teaching, digital content capturing, streaming, refinement, publishing and management. Emphasis has been laid on open source and affordable software wherever needed for making a complete start-to-end process of technology enhanced learning in line with the current global trends.

Some of the key features of the resource centre include:

- Enhancement in pedagogical style by integrating whiteboard with touch sensitive computer and laptop for effective teaching
- Unmanned automated high resolution PTZ (Pan-Tilt-Zoom) cameras integrated with whiteboard and video control equipment to produce high quality digital educational content with least manpower with quick processing time
- Character generation titling to facilitate screen titling during the recording process itself thereby reducing editing time
- Visual enhancements for content creation (with controlled white lighting system)
- Better technology enhancements, visual enhancements and better capability to add text-on-the fly while recording a video
- Mini editing lab with editing software like Creative cloud and Camtasia
- Green mat integrated into classroom for chroma-key effects in digital video development



Visit of Dr. T. Mohapatra, Secretary, DARE and DG (ICAR) to TELAgE lab

- Publishing in e-learning server for the wider consumption in different course formats like MOOC, Distance Education, etc.,
- Virtual learning environment by integration of online activities and technology enhanced learning through e-learning portal

The resource centre has been used extensively with an annual production of about 400 hours of video modules which are extensively used for digital course production, online courseware, distance

education course material, microteaching exercise for the teaching faculty, and consultancy for producing digital courseware for other institutes.

Besides this, the centre is having a steady flux of visitors from various institutes within and outside ICAR system and received much appreciation for its innovative methodology. There were 705 visitors for the centre during 2016 which is almost 3.5 times the visitors in the previous year.

Feedback from some of the dignitaries...



"Excellent initiative. Very good process to reach the unreached. The e-courses and contents are of high quality. I appreciate the very idea and congratulate all concerned for the significant progress. Let us continue the efforts."

- Dr. T. Mohapatra, Secretary, DARE & Director General, ICAR



"State of art facility using modern IT tools for capacity development. Should go a long way in upgrading faculty and skill development of farmers with least cost." **-Dr. Ramesh Chand, Member NITI Aayog**



"Really nice set up of teaching & learning process. It should be integrated in all SAU's. NAARM deserves appreciation for this unique work." **-Dr. N. S. Rathore, Deputy Director General (Education), ICAR**



"This centre is amazing. I never thought such a facility exists in our system. I am sure the team with the facility can change our on-line learning systems. Good leadership & great work."

-Dr. K Alagusundaram Deputy Director General (Engineering), ICAR



"Extremely productive and useful system in place. I am sure this will have a huge impact in teaching."

- Dr. Panjab Singh, Ex-DG, ICAR & Ex-VC, BHU



"It is fascinating to see the adoption of new technologies in agricultural education system here in NARES for the benefit of Agricultural Universities (AU). I compliment the entire team for the initiative and hope it will trigger the use in AUs." **-Dr V. Praveen Rao, Vice Chancellor, PJTSAU, Hyderabad**



"Very impressed by the level of technology and usefulness. Many ideas for use at University of West Indies...." **-Dr Wayne Ganpat, Dean, Faculty of Agriculture, University of West Indies, Trinidad**



"NAARM has developed excellent and useful facility. It will benefit large number of researchers/teachers of the country. I compliment the team and wish them best of luck." **-Dr P.K. Joshi, Director- South Asia, International Food Policy Research Institute, New Delhi**



"The programme is quite good and convenient for learners. All of us have benefitted a lot and definitely will register or educate colleagues back home to come for the programmes." **-Mr Abigail Mandirha, Ministry of Rural Development, Zimbabwe**



"It was really interesting for me. It is so useful for learning ..." **-Prof Sayed Mohammad Kabir, Kandhar, Afghanistan**



Chapter - 6
Happenings
at **NAARM**



Happenings at NAARM

6.1. Special Events

6.1.1. XXIII ICAR Regional Committee Meeting for Zone-II

The XXIII Meeting of the ICAR Regional Committee for Zone-II was held during 24-25 June 2016 at the ICAR-National Academy of Agricultural Research Management (ICAR-NAARM), Hyderabad. The zone comprises the states of West Bengal, Odisha, Andhra Pradesh, Telangana and the Union Territory of Andaman & Nicobar Islands. The Committee provides a forum for liaison and coordination among the R&D institutions and State Departments of Agriculture, Animal Husbandry and Fisheries.

The Directors of all the ICAR institutes, Vice Chancellors and university officers of the State Agricultural Universities, Officer in-charges of research stations and scientists, Directors of line departments of the states, besides all the Deputy Directors General and other senior officers of ICAR attended this biannual meeting. Dr. Trilochan Mohapatra, Secretary (DARE) & Director General (ICAR) chaired the meeting and led the interaction

between the development departments of the states and the concerned research institutions on the technology availability and backstopping for the agricultural development of the zone. The meeting was inaugurated by Shri. Swapan Debnath, Minister of State (Independent Charge), Department of Animal Resources Development, Government of West Bengal and also released publications from different ICAR institutes.

Dr. D. Rama Rao, Director, ICAR-National Academy of Agricultural Research Management (ICAR-NAARM) welcomed the gathering. Dr. V.R. Suresh, Acting Director, ICAR-Central Inland Fisheries Research Institute, Barrackpore proposed vote of thanks. Dr. B. Ganesh Kumar, Principal Scientist, ABM Division was the Nodal Officer who coordinated the meeting.

6.1.2. Agricultural Education Day

Indian Council of Agricultural Research (ICAR) commemorates the birth anniversary of (Late) Dr. Rajendra Prasad, who was the first Minister of Food and Agriculture after the elections in 1946 and the



XXIII ICAR regional Committee Meeting for Zone-II



Dr. Trilochan Mohapatra, Secretary, DARE & DG, ICAR addressing the gathering during the Agricultural Education day



Winners of different competitive events receiving their honours from Dr. T Mohapatra



Painting of participant (P MANASWINI) won the first prize in competition



A section of Audience

first President of Republic of India, as Agriculture Education Day on 3rd December every year. The occasion is celebrated to sensitize the students on the importance of agriculture and allied subjects for ensuring food and nutritional security of the people and livelihood security of the farmers, apart from contributing to the national GDP. On this occasion, NAARM organized series of events at its premises in Hyderabad to mark the Agricultural Education Day.

Dr. Trilochan Mohapatra, Secretary, Department of Agricultural Research and Education (DARE) and Director General, ICAR, Ministry of Agriculture and Farmers Welfare, Government of India, was the Chief Guest of the event. Dr Mohapatra addressed the gathering and distributed certificates to the winners of various events. More than 100 school children from Bhartiya Vidya Bhavan (NIRD), and about 250 students from NAARM, MANAGE, PJTSAU, PVNR, Telangana Veterinary University,

and Tamil Nadu Agricultural University (TNAU), Coimbatore participated in various competitions, organized on the theme of 'agriculture education'. The competitions were organized on painting, quiz, 'best of out of the waste' and elocution competitions for the school children and college students. These events provided an opportunity to unravel the creative quest of the students towards making our lives close to nature and for promoting sustainable livelihood practices. Dr SK Soam was the coordinator of the event.

For More Information: (<https://naarm.org.in/agriculture-education-day-celebrations-at-naarm-on-3rd-december/>)

6.1.3. Felicitation of Padma Awardees

The Academy felicitated Shri. Chintakindi Malleshham and Shri. Daripalli Ramaiah, who have been conferred Padma Shri, by His Excellency, the

President of India during the Inaugural Function of the 8th National Extension Congress-2017 on 28 Jan 2017. Shri. Malleshham is recognized for his Weaving Machine innovation and awarded Padma Shri under the Science and Engineering category. Shri. Ramaiah has been recognized for his efforts in popularizing the message of greening the country and awarded Padma Shri under the social work category. Dr. R. Kalpana Sastry, Director (Acting), ICAR- NAARM gave a glimpse of the stellar

contribution made by these Unsung Heros to the mankind and fondly recalled their association with the Academy. Dr. N.S. Rathore, DDG (Edu.), ICAR, New Delhi. Dr. D. Rama Rao, Former Director, ICAR-NAARM, Dr. Praveen Rao, Vice Chancellor, PJTSAU, Hyderabad, Dr. Premjit Singh, Vice Chancellor, Central Agricultural University (CAU), Imphal were among the eminent researchers and academicians who felicitated the Padma awardees. Dr. Senthil Vinayagam, coordinated the event.



Felicitations of Shri. Chintakindi Malleshham, Padma Awardee



Felicitations of Shri & Smt Daripalli Ramaiah, Padma Awardee

6.1.4. Haritha Haaram (Tree planting program)

The Academy organized a mass tree planting program in its campus on 30th July 2016. The faculty, staff, FOCARS trainees (104th batch), PGDMA students & workers actively took part in the tree planting program. The program started with a tree planting rally from the NAARM Guest House and it marched towards different planting sites. A total number of 2000 saplings were planted. The tree species included shade and flowering trees like *Neem*, *Peltoforum*, *Gulmohur*, *Pagoda*, *Flame of the forest*, *Bahunia*, *Jacaranda*, *Lagerstromea indica*, *Tabubia argentia*, *Royal palm*, *Banyan*, *Silver oak*, *Peepal*, *Spathodia*, *Cassia fistula*, *Parkia* etc.

All the activities were monitored right from digging of pits, arrangement of manure, consulting and submitting proposal to the HMDA & Forest authorities, selection and acquiring the saplings of different tree species from the nurseries, making four planting groups, and other miscellaneous works for the success of this program. The after care of the planted saplings is also ensured.



Tree plantation in the campus on July 30, 2016

6.1.5. NAARM Foundation Day

On 1st September, 2016, the Academy celebrated its 41st Foundation Day. Dr. Trilochan Mohapatra, Secretary, DARE, Govt. of India and Director General, ICAR was the Chief Guest of the function. The Chief Guest released several publications and gave away the best worker awards. On this occasion, the reunion workshop was also organized, the Former Directors of the Academy viz Dr. KV. Raman, Dr. JC. Katyal, Dr. SP. Tiwari, Dr. SM. Ilyas and Dr. PK. Joshi attended the function and gave their remarks. About 25 alumni of the 1976-78 batch also attended the function.

Best Employee of the Decade (2005-2015)

A new award, "Best Employee of the Decade Award" was constituted during 2016 to recognize the consistent performance of the employees over last ten years (2005-15). The awardees for 2016 were:

Shri K Samson	Temporary Status Casual Worker
Shri Phool Kumar	Skill Supporting Staff
Shri M Srinivasa Rao	Sr. Technical Assistant
Shri TV Ramadas	Administrative Staff

Best Worker Award-2016

Shri. KC Satyanarayana	Temporary Status Casual Worker (Men)
Smt. E Yadamma	Temporary Status Casual Worker (Women)
Shri. L Satyanarayana	Skill Supporting Staff (Men)
Smt. V Saroja	Skill Supporting Staff (Women)
Shri. Pitla Srinivas	Technical Assistant
Shri. C Phani Raj	Administrative Staff (Men)
Smt. Y Gayathri	Administrative Staff (women)



Dr Trilochan Mohapatra, Secretary, DARE, Govt. of India and Director General, ICAR address during Foundation Day

6.1.6. National Productivity Week

National Productivity Week (February 12-18, 2017) was celebrated at the Academy under the theme *"From waste to profits through Reduce, Recycle and Reuse"*, in order to increase the awareness on enhancing the productivity through modern methods, technologies, better materials and applying waste minimizing techniques. About 120

participants including faculty, students and staff members of the Academy participated on the first day of the event. The scientific method of making compost using crop residues, tree leaves and other biodegradable wastes around the campus was demonstrated to the participants. A compost pit, big enough to dump all the biodegradable litters generated in the campus, was dug. Number of other events such as quiz, essay competition and elocution competition were conducted for the staff and students of the Academy during this week. Besides, a drawing competition was conducted for the school students of Bharatiya Vidya Bhawan, NIRD Campus, Rajendranagar and TIME School, Bandlaguda on the topic of 'Reduce, Recycle and Reuse' on this occasion and winners were given prizes. The event was organized by the ABM Division and Dr. N. Sivaramane and Dr. B. Ganesh Kumar coordinated the event.

For more information: <https://www.youtube.com/watch?v=Mt7SPQZ9iAo>



PGDMA students participating in collection of farm residues under National Productivity Week

6.1.7. National Science Day

National Science day is celebrated in India on 28 February in order to commemorate the discovery of Raman's Effect by Sir C.V. Raman, the first Nobel laureate from India. The theme for the National Science Day 2017 was 'Science and Technology for specially-abled persons'. NAARM organized an Innovative Idea Contest, "Ideathon-Tell an Idea Sir Ji", for the students of Agricultural Universities, MANAGE, NAARM and the wards of the Academy. Students from PJTSAU, PVNRTVU and NAARM participated in the contest and presented their ideas on the use of S&T for easing the lives of the specially-abled. The ideas ranged from use of nano-particles for prosthetics to GPS-guided stick for the visually challenged.

As a part of the event, the Academy organized a Special Lecture by Prof. Prakash Shrivastava, Emeritus Professor, University of Southern California, Los Angeles, CA, through web-conferencing. Prof. Shrivastava highlighted the research undertaken by him with Prof. Srinivasa Prakash Regalla, Department of Mechanical Engineering, BITS Pilani, Hyderabad Campus and presented the success story of their innovation on providing lasting solution for those with amputated legs. Dr. R. Kalpana Sastry, Director (Acting) presented certificates and inspirational books on various subjects to the winners. All the participants were presented a gift subscription of Science Reporter, the national science magazine published by NISCAIR, for one year, in order to inculcate the habit of scientific reading among the young minds.

For more information: <https://www.youtube.com/watch?v=f0Mv7gXilwg&feature=youtu.be>



Certificate distribution to the winners during National Science Day

6.1.8. Republic Day

NAARM celebrated the 68th Republic day on 26th January, 2017 at its premises wherein all the faculty and staff members, students and trainees participated. Dr. R. Kalpana Sastry, Director (Acting) unfurled the flag and addressed the gathering. At the outset, she conveyed her warm wishes to all the members of NAARM family on this occasion. She highlighted the key achievements of the Academy and complimented the staff members and students who brought laurels by winning awards and recognitions in various fora. She called upon all the members of NAARM family to strive hard to take forward the momentum so as to realize the Vision of the Academy. Various sports and cultural events were organized for the staff and students and the Winners and Runners were awarded trophies and certificates during the event.



Flag hosting during the Republic Day

6.1.9. Vigilance Awareness Week

As per instructions from ICAR [F.No. 51-2/2016-Vig-I dated 17.10.16], vigilance week was celebrated during October 31- November 5, 2016. The theme of the year was "*Public Participation in Promoting Integrity and Eradicating Corruption*". As part of the program, essay and elocution competitions on the theme were held.

Sensitization Workshop on Vigilance Matters

A workshop was conducted on 5th November, where in about 80 participants consisting of staff and faculty members and trainees participated. The Vigilance Officers from Hyderabad based ICAR institutes who participated were Dr. ARG. Ranganatha, IIOR, Dr ER Reddy, ATARI,

Dr M. Srinivas Prasad, IIRR, Dr S. Desai, CRIDA and Dr PG Padamaja, IIMR.

Shri Rajan Agrawal, Director (IC), DARE, and Chief Vigilance Officer (DARE/ICAR) was the Chief Guest in the sensitization workshop. Shri Agrawal emphasized upon various components related to preventive vigilance, punitive actions and surveillance measures. He defined the complaints (anonymous, pseudonymous and synonymous), misconduct, integrity values (individual and organizational), accountability, ethics & morals, and discretion etc. The disturbance in variables of equation consisting of 'Mystification+ Discretion +Accountability' pave the way for corruption. Change within self, use of technology for transparency, and increasing awareness among consumers & clients of public services are the most important elements. One of the recommendation from this workshop is that ethics, moral and vigilance may be part of curriculum at UG and PG level in agricultural universities. The Chief Guest, Shri Rajan Agrawal, distributed the certificates to the winners of various events conducted during the week. Dr. SK. Soam, Vigilance Officer was the coordinator of this program.



Dr. SK. Soam, Vigilance Officer welcoming the dignitaries and participants.



Shri Rajan Agrawal, Director (IC), DARE, and Chief Vigilance Officer (DARE/ICAR) distributing the certificates.

Winners in Competitive Events

Essay Writing for Faculty and Officers

First Prize:	Dr. GRK Murthy
Second Prize:	Dr. K Kareemulla
Third Prize:	Dr. P Krishnan

Essay Writing for Staff

Best Essay:	Mr ACPRN Rao
Best Essay:	Mr P Srinivas
Best Essay:	Mrs N Vijayalakshmi

Elocution for PGDMA Students

First Prize:	Ms Naushaba Khatoon
Second Prize:	Mr CH Srikar
Third Prize:	Ms Krithika Sharma

6.1.10. Visit of the Parliamentary Committee on Official Language

The Committee of Parliament on Official Language visited Hyderabad, and inspected the work of NAARM on 10th September 2016. The Committee was headed by Dr Satya Narayan Jatiya, Hon'ble Member of Rajya Sabha, the other Hon'ble Members of Parliament were Shri Prasanna Kumar Patasani, Dr. Sunil Baliram Gaikwad, Shri Laxmi Narayan Yadav and Shri Bashistha Narain Singh. As mandatory requirement, several documents were prepared and exhibition was also organized at Hotel Park Hyatt. Dr SK Soam, Shri Ashish Roy and Dr J. Renuka were the coordinators of this event.



Team NAARM presenting the work report to the committee of parliament on official language



Dr. D Rama Rao, Director, NAARM submitting the documents to the Hon'ble Members of Parliament

6.1.11. World Soil Day

NAARM marked the World Soil Day on 5th Dec 2016 in its adopted villages in Nalgonda district viz, Tallasingaram and S. Lingotam. Soil health based advisory services were provided to the farmers, highlighting the importance of soil as a critical component of the natural system. It was emphasized that soil quality is an integral determinant of crop yield apart from fertilizers, seeds and water. The farmers were advised on the physico-chemical properties of the soil and their nutrient status. Advisories with respect to correct fertilizer dosage and crop compatibility with the soil status, were issued in vernacular language as text and voice messages. KVK-Kampasagar collaborated with NAARM in the event.

6.2. Reaching out to farmers

6.2.1. Mera Gaon Mera Gaurav (MGMG)

The Academy adopted two villages, S. Lingotam and Tallasingaram in Chautuppall Mandal, Nalgonda district of Telangana State from 2 Oct 2014 in partnership with Pratistha industries. The adoption was based under the Government of India programs viz. Sansad Adarsha Gram Yojana (SAGY); *Mera Gaon & Mera Gaurav*; and Pradhan Mantri Kaushal Vikas Yojana to improve the livelihoods, integrate market linkages and initiate faster, cheaper and efficient ICT-based transfer-of technology. All the faculty and students were actively associated in farmers' need assessment through baseline survey; knowledge tests on major crops for assessing knowledge gaps; focussed group discussions on livelihoods, animal husbandry and crop husbandry; ICTs access was provided with the usage and preference for agriculture in partnership with Agro-book (Start-up promoted by NAARM); and digitization of cadastral maps indicating village boundary and survey numbers -wise macro and micro nutrient soil analysis results was also materialized in collaboration with ICM division of ICAR-NAARM. A knowledge platform for farmers was developed, which is being used to advise farmers on crop plan and socio-economic interventions with OFT and FLD in collaboration with KVK-Kampasagar and IIRR, Hyderabad. The Academy in association with other research and development departments organised general health camps and skill development programs for women. The farmers' database was developed to connect to the web application indicating the soil analysis results and to provide push- based Agro advisories directly to the mobiles of farmers. The information hub of Wi-Fi Centre had improved access to markets, healthcare information and helped to sensitize rural youth in computer applications, access to agriculture-related information has proved to be one of the most popular uses of the centre. Now, Vemulanurva village and Banjarala Thanda of Kesampet Mandal of Ranga Reddy district has been adopted on 11th Jan 2017 and a few activities have been carried out as motivational activities while the baseline survey is under process.



Farmer-scientist interaction at ICAR-NAARM



Introductory meeting at village Vermulanurva of district Ranga Reddy



Visit of farmers and farm women to veterinary college & horticulture college, Hyderabad

6.2.2. Field Experience Training for Scientist-Probationers

The scientist-probationers are sent to various KVK Centres across India for three weeks, in order to acquaint themselves with the field conditions as a part of the Foundation Course.

The probationers of 104th FOCARS were sent to 11 KVKs viz., KVK- Gadag, CIAE Bhopal, Palem, Gurgoan, Bharamathi, Karamadai, CTRI, Rajahmundry, Sirohi, Ramanathapuram, Nimpith, CPCRI Kasargode. Six probationers representing different disciplines, gender and state were sent to each of the above KVKs except CPCRI-Kasargode, where seven probationers were sent. During the 104th FOCARS, five probationers were sent to each of the following five KVKs viz., Sabour, Bihar; Gangavathi, Karnataka; Satna, Madhya Pradesh; Jalawar, Rajasthan and Bud bud, West Bengal.

6.3. Empowering Women in Agriculture

6.3.1. Celebration of International Women's Day

International Women's Day was celebrated at ICAR-National Academy of Agricultural Research Management, Hyderabad on 8th March, 2017. A panel discussion was organized with the theme- "Women in the Changing World of work: Planet 50-50 by 2030". Dr. R. Kalpana Sastry chaired the discussion and there were four panelists- Ms. Joanna Potaka, Director, Strategic Marketing & Communications from ICRISAT, Patthacheru; Dr. Jayashree Subramanian from Tata Institute of Social Sciences; Ms. Manvitha Reddy, Co-founder of Homecrop and Dr. Ravindra Babu, Director, IIRR, Hyderabad. Participants were from the host institute as well as ICAR sister institutes like IIOR, IIRR, CRIDA etc. The world of work is changing with significant implications for women. The technological advances and globalization is bringing unprecedented opportunities for those who can access them whereas on the other hand, there is growing informality of labour and income in equality. If more and more women are gainfully employed, then the GDP of a country is sure to increase. Women are no less than men. Given equal opportunities, they might even perform better than men. The only need is to build an ecosystem which would allow them to grow and work fearlessly. To increase the number of women in the workforce, there should be gender friendly policies and facilitation on the part of the organisations.



International women's day celebrations in NAARM

6.4. Health and Cleanliness Drive

6.4.1. Blood Donation Camp

The Health Centre of the Academy conducted Blood Donation Camp involving staff, trainees of 104 FOCARS and students on 20/09/2016 with the help of Red Cross Society of Telangana state. A total of 44 persons donated blood and made the event a memorable one.

6.4.2. Swachh Bharat Abhiyan (Clean India Mission)

As part of Swachh Bharat Abhiyan several programs were organized. The activities taken up by the Academy during the year are summarized below.

Swachta Pakwada

A mass cleaning program was organized on 2nd October 2016 in the Academy. The *Swachta Pakwada* was started with pledge taking by all the members including trainees, faculty, staff & workers. The 104th FOCARS probationers, faculty, staff and workers of the Academy participated in the program. The surroundings of different office buildings viz. admin. Block, auditorium, conference hall, faculty building, vehicle sheds, faculty centre, teaching block, canteen building, health centre and 4 guest houses were taken up.



Participation of students in competition

Mass cleaning of the campus

Swachhta Competitions

There were different (Elocution, Essay writing, Debate, Poetry/Song) competitions programs held in the Academy to motivate the people towards the *Swachh Bharat Mission* during *Pakhwada*. The Three cash prizes awarded in each category. This program was conducted successfully.

Other Cleaning activities

The other cleaning activities included the campus roads and pavements cleaning, cleaning sports ground, tennis court, hostel blocks inside areas were cleaned. Building roof top cleaning was taken up. Lime and red oxide painting of avenue tree trunks was also taken up. The surrounding cleaning of all the residential quarters was also taken up and all these activities and events are properly documented. the contractual garbage collection scheme in the campus with the help of *GHMC* successfully implemented.



Cleaning of guest house & sports stadium being taken up regularly

Recycling of solid wastes

The leaf litter, grasses, weeds which were collected daily in the campus varied from season to season. This solid waste is collected from the campus roads under the avenue trees, pavements and landscape areas. All the bio-degradable wastes are collected and heaped in the old nursery area. After segregation, the farm waste is used for vermicomposting in the old nursery area. The vermin compost so produced is used for nursery plants and landscape garden.

6.5. Sports, Yoga and Meditation

6.5.1. Sports Meet

The ICAR South Zone Sports Meet was organized by ICAR-NAARM during 22-26 August 2016. Twenty-three ICAR institutes participated in the event. A total of 685 sports persons participated including 71 women. The event was organised at Railway Stadium, Secunderabad. There were 12 athletic events and nine games events in this tournament. The meet was inaugurated by Shri. Rajiv Trivedi, IPS, Principal Secretary, Government of Telangana and was presided over by Dr. D. Rama Rao, Director, ICAR-NAARM.

The overall Team Championship was won by CMFRI, Kochi and IIHR, Bangalore won the runner title. Mrs. Rukmini, from NAARM was adjudged the Overall Individual Champion (Women), during the tournament. NAARM stood at fourth place in terms of the total tournament score.



ICAR South Zonal Sports Meet 2016 organized by NAARM during August 22-26, 2016.

Winners of Sports meet from NAARM

Name	Sport
MK Samson	First place in Shot put, Discus throw and Javelin
Sham Bahadur	Runner up in Table Tennis (Singles)
NAARM Team	Runner up in Volley Ball (Smashing) First place in Discus throw, Shot put
KK Rukmani	Winner in Badminton (Singles) Runner up in Table Tennis (Singles) Overall Champion (Women)

6.5.2. International Day of Yoga

NAARM celebrated the 2nd International Day of Yoga on 21st June, 2016. About 250 participants including faculty, staff members, PGDMA students and trainees of Academy, employees of ICAR institutes in Hyderabad and students from local high school, took part in the celebration. The Yoga Session as per Common Yoga Protocol (CYP) of Govt. of India was practiced from 6-00 to 7-00 am at the lake view lawn in front of the auditorium. The practice of CYP was followed by the session on “Virtues and benefits of Yoga” by Swami Bheetiharananda of Rama Krishna Mutt, Hyderabad.



Yoga practice during International Yoga Day



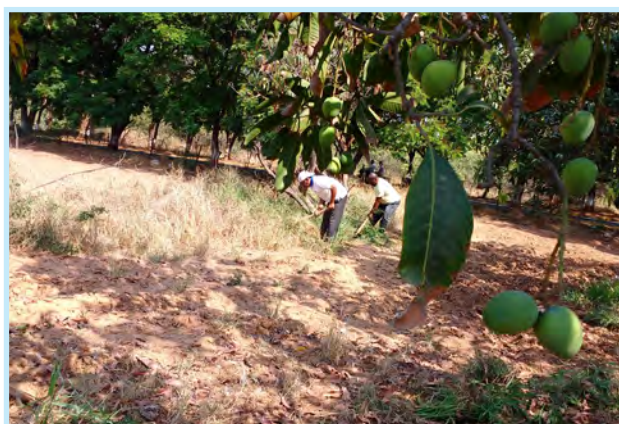
Session on “Virtues and benefits of Yoga” by Swami Bheetiharananda

6.6. Other Activities undertaken at NAARM

6.6.1. Farm Activities

Orchard crops

The orchard crops viz. mango (2.0 ha), sweet lime (1.5 ha), sapota (0.25 ha), aonla (0.25 ha), custard apple (1.0 ha), phalsa (0.5 ha), and other miscellaneous fruits were grown in an area of 6.5 hectares. These crops were auctioned for the period of one year and all the technical aspects viz., nutrient management, water management and integrated pest and disease management were undertaken by the Academy.



Cultural operations being taken up in the mango & sweet lime orchards

Floriculture

This block consists of Rose garden, cut flower species like *tube rose*, *gladioli*, *chrysanthemums* and *golden rod* cultivated in an area of 0.5 ha. This flowers were used for floral arrangement during various office functions. Apart from this, seasonal flowering species viz. *marigold*, *chrysanthemums*, button flower, were raised in flower beds in the floriculture block and seasonal like *salvia*, *marigold* and *chrysanthemums* were planted in the landscape garden.



Different species of perennial and seasonal flowers in bloom

Landscape Garden and Nursery Management

The existing landscape gardens of Hostels, Faculty block, Academic block, Admin block, Director's office and Auditorium were taken care. The main activities involved irrigation, manuring, moving of lawns, hedge pruning, cleaning etc. Multiplication of ornamental plants like *Hibiscus*, *golden durnantha*, *bougainvillea*, *almanda* etc. was taken up at the nursery. Potted plants consisting of indoor plant sp. viz. *Ferns*, *Dieffenbachias*, *Dracaena*, *Pedilanthus*, *palms*, *Aralias*, *Eranthemums*, *Senciveria*, *Kalaonche* (total 500 Nos.) were

developed and arrangement of the same was taken up in the Academy during different functions.

Special focus was given on beautification of landscape gardens of Halls of Residence, Scientists' Home, International Guest House and Faculty House. The rocky island type hillock in the lake was cleared of unwanted wild grasses and weeds. Different shades (9 No.) of *Bougainvillea* species were planted along with *palms*, *Tabubia argenticia* and *Ficus benghalensis* species.

Aquaculture

The water percolation pond, which received copious water during the rainy season, was stocked with about 25000 fingerlings of three species viz. Catla, Common carp and Grass carp, procured from a fish farm in Warangal.



Fishes released in the lake of the Academy

6.6.2. Campus Development Works

The campus cleaning works like sweeping of roads, cleaning of premises of campus buildings like offices, hostels and residential quarters were planned and taken care at regular intervals. In addition to this, special efforts were made for face lifting works at important occasions. There was a high wind velocity gale storm on 20th May, 2016, when about 34 trees were completely uprooted and 200 branches fell down. All the fallen trees and branches were disposed off and a revenue of ₹70,000 was generated by the sale of the wood.

6.7. Visitors at NAARM

6.7.1. Distinguished Visitors

In view of the uniqueness of its leadership role in the area of Agricultural Research, Education and Extension Education Management, NAARM attracts

visitors from different parts of the country and abroad. During the period under report, several Senior Officials from the National and International Organizations visited the Academy and interacted with the Faculty and Officers. The details are listed in the following Table 6.3.

Table 6.3. Distinguished visitors from National and International organizations

Name	Designation	Date of Visit
Dr. G Venkateshwarulu	ADG (EQR), ICAR, New Delhi	01.04.2016
Dr. A Padma Raju	Former Vice Chancellor, ANGRAU, Guntur	03.04.2016
Dr. SL Goswami	Vice Chancellor, Banda University of Agriculture & Tech. Banda, UP	04.04.2016
Dr. DL Maheswar	Vice Chancellor, University of Horticultural Science Bagalkot, Karnataka	19.04.2016
Dr. D Devakumar	Ex-ADG (EPD), ICAR, New Delhi	27.04.2016
Dr. AK Singh	DDG (Agri.) ICAR New Delhi	06.05.2016
Dr. Lutful Hassan	Professor, Bangladesh Agricultural university, Bangladesh	09.05.2016
Dr. M Serajul Islam	Professor, Dept. of. Agriculture Economics, BAU, Bangladesh	09.05.2016
Dr. Febi varghese	MD, Kerala Minerals and Metals Ltd, Govt. of Kerala	11.05.2016
Dr. IAK Reddy	Professor, NIT, Warangal	19.05.2016
Dr. Barry Sponder	Professor, Central Connecticut State University, USA	19.05.2016
Dr. V Valli Kumari	Head, Dept. of Computer science, College of Engineering, Andhra University, Vizag, AP	20.05.2016
Dr. Wayne Ganpat	Dean, Faculty of Agri. University of West Indies, Trinidad	17.06.2016
Dr. V Praveen Rao	Vice Chancellor, PJTSAU	08.08.2016
Dr. PK Joshi	Director- South Asia IFPRI, Pusa, New Delhi	02.09.2016
Dr. SP Tiwari	Ex-Vice Chancellor, SKKAU, Ex-DDG, and Ex- Director, NAARM	02.09.2016
Shri. CR Mehta	Project Coordinator, AICRP on FIM, CIAE, Bhopal	18.10.2016
Mr. Abigail Mandirha	Ministry of Rural Development, Zimbabwe	18.10.2016
Dr. Shalini Bharat	Director (Acad.) TISS, Mumbai	19.10.2016
Smt. V. Usha Rani	DG, Manage, Hyderabad	28.10.2016
Dr. T Mohapatra	Secretary, DARE and Director General, ICAR, New Delhi	03.12.2016
Dr. VP Sharma	Director, MANAGE, Hyderabad	23.12.2016
Dr. C Chattopadhyay	Vice Chancellor, Uttar Banga Krishi Viswavidyalaya, Pundibari, Coochbehar	19.01.2017
Dr. Arvind Kumar	Vice Chancellor, Rani Lakshmi Bai Central Agricultural University, Jhansi (UP)	21.01.2017
Dr. M Premjit Singh	Vice Chancellor, Central Agricultural University, Imphal	30.01.2017
Dr. AK Garg	Joint Director (Ext. Ed) IVRI, Izatnagar (UP)	30.01.2017
Dr. KK Saharia	Member, ICAR Governing Body and Professor, Extension Education, College of Veterinary Science, AAU, Khanapara, Assam	30.01.2017
Dr. Premlata Singh	Head, Div of Agril. Extension and School Coordinator, Social Ssciences. ICAR- IARI, New Delhi	31.01.2017
Dr. NP Rajasekharan	CEO, Guru management Consultants, Bangalore	18.02.2017
Dr. Satender Singh Arya	CEO, Agriculture Skill Council of India, New Delhi	21.02.2017
Dr. H Philip	Director of Extension Education, Tamil Nadu Agril. University, Coimbatore	27.02.2017
Joanna-Kane -Potaka	Director, Strategic Marketing & Communications ICRISAT, Pathencheru	08.03.2017
Dr. WR Reddy	DG, NIRDPR, Hyderabad	15.03.2017
Dr. Sujit Kumar Mitra	Director(Personnel), ICAR, New Delhi	17.03.2017
Dr. Ramesh Chand	Member, NITI Aayog, Govt of India, New Delhi	18.03.2017

6.7.2. Visitors from Agricultural Institutes

The Academy hosted 2246 agriculture students from various parts of the nation. The details are shown in Fig. 6.1

Most of the visitors were from Tamil Nadu Agricultural University or its constituent/ affiliated colleges. Maximum number of visitors were from southern part of India and less than 10 percent of them were from northern part of India. All of them had visited NAARM during the last two years of their undergraduate course curriculum.

International visitors: 18 Participants of National Resource Management for Sustainable Rural Livelihoods program and 32 International Executives from African and Asian Countries visited NAARM on 18th and 19th October, 2016 respectively through MANAGE, Hyderabad.

School Students: Around 144 students from Bharatiya Vidya Bhavani's Almakuri School visited NAARM on 8th December, 2016.

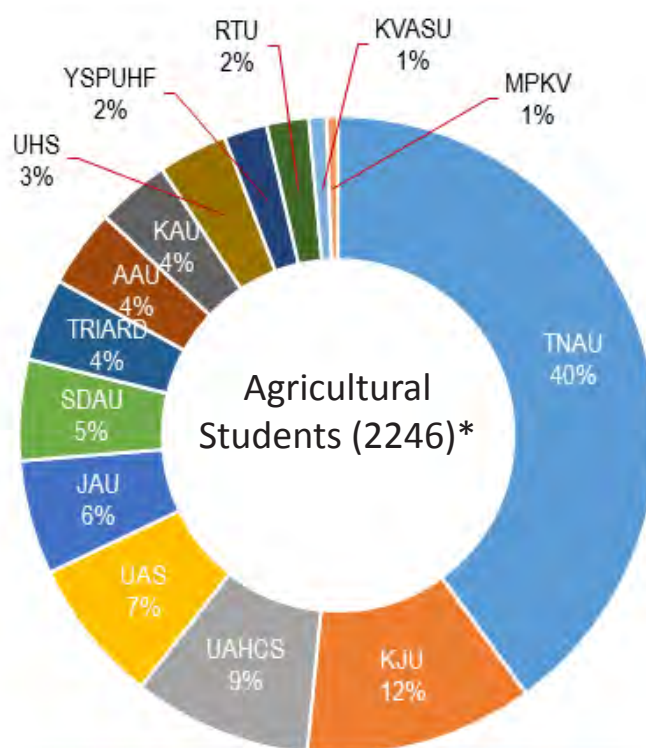


Fig.6.1 Students-visitors from different Agricultural Universities

TNAU-Tamil Nadu Agricultural University, Coimbatore (Tamil Nadu); UAHCS-University of Agricultural and Horticultural Sciences, Shivamogga (Karnataka); UAS-University of Agricultural Sciences, Bangalore (Karnataka); JAU-Junagadh Agricultural University, Junagadh (Gujarat); SDAU-Sardarkrushinagar Dantiwada Agricultural University, Banaskantha (Gujarat); TRIARD-Thanthai Roever Institute of Agriculture and Rural Development, Perambalur (Tamil Nadu); AAU-Assam Agricultural University, Jorhat (Assam); KAU-Kerala Agricultural University, Thrissur (Kerala); UHS-University of Horticultural Sciences, Bagalkot (Karnataka); YSPUHF-Dr.Y.S. Parmar University of Horticulture and Forestry, Solan (Himachal Pradesh); MPKV-Mahatma Phule Krishi Vidyapeeth, Rahuri (Maharashtra); KVASU - Kerala Veterinary & Animal Science University; RTU - Rai Technology University; KJU - Karnataka Janapada University



Chapter - 7
Publications
and **Recognitions**



Publications and Recognitions

7.1. Publications

A total of 106 publications formed part of output from research activities of the faculty. The number of research papers was about 33% more than that published during the last year (Table 7.1 and Fig.7.1). Over 50% of the research papers published

by the faculty of the Academy were in collaboration with scientists from other institutions.

All publications are deposited in NAARM digital repository (Eprints@naarm), and a doi (Digital Object Identifier) generated for easy accessibility.

Table 7.1. NAARM publications during 2016-17

Category of Publications	Total
Research Papers	52
Books Authored	5
Book Chapters	15
Review Reports/ Policy Briefs/ Popular Articles	04
Project Reports	06
Papers in Proceedings of Seminars/ Symposia/Workshops/ Conferences/Meetings	07
Training Courseware/ Compendium (developed for NAARM programmes)	17
Total	106

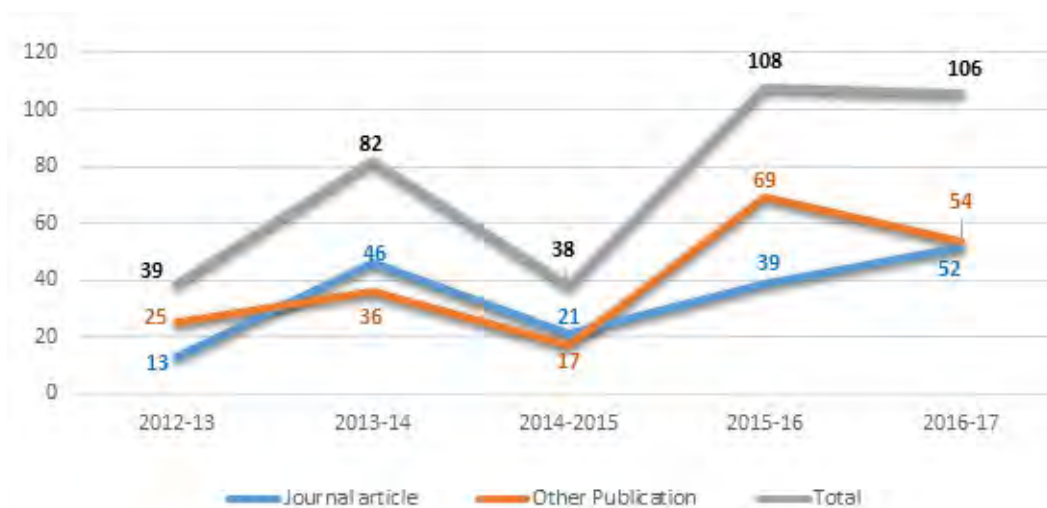


Fig. 7.1. NAARM Publications

7.1.1. Research papers

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7.1.4. Review Reports/ Policy Briefs Popular Articles

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National

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Rathore, S. and Ganesh Kumar, B. (2016). Impact Assessment of Agricultural Extension. Training Manual, ICAR-National Academy of Agricultural Research Management, Hyderabad, p221.

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Vinayagam, S.S. and Rao, V.K.J. (2016). 5th MDP programme for newly recruited programme coordinators of KVKs. Training Manual, ICAR-National Academy of Agricultural Research Management, Hyderabad, p362.

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7.2. Awards

7.2.1. TOLIC Award

In recognition of implementation of official language at the Academy, NAARM got 'Best Performance Award' from Town Official Language

Implementation Committee-2 (TOLIC), Hyderabad, Central Govt. Offices, Department of Official Language, Ministry of Home Affairs. The award was received by Dr. R Kalpana Sastry, Acting Director, Dr. SK Soam, Head, ICM and Dr. J Renuka, AD (OL) from Dr. WR Reddy, IAS, Convener of TOWLIC, Hyderabad, on 15th November 2016.



TOLIC Award being received by NAARM Team

7.2.2. ICAR Award for Institutionalizing Digital Transactions

ICAR-NAARM was awarded Rs. 2 lakhs prize for its initiatives for institutionalizing digital transactions in the Academy. Dr. R. Kalpana Sastry, Director (Acting) received the award from Shri. Radha Mohan Singh, Hon'ble Union Minister of Agriculture and Farmers' Welfare, Government of India, during the Annual Conference of Vice-Chancellors of Agricultural Universities and Directors of ICAR Institutes, held on 15 Feb 2017 at New Delhi. Shri. Parshottam Rupala, Minister of State for Agriculture & Farmers' Welfare, Dr. Trilochan Mohapatra, Secretary (DARE) & Director General (ICAR), Shri. Sunil Kumar Singh, Additional Secretary & Financial Advisor (DARE/ICAR), Shri. Chhabilendra Roul, Additional Secretary (DARE) & Secretary (ICAR), Dr. Gurbachan Singh, Chairman (ASRB) and Dr. Narendra Singh Rathore, Deputy Director General (Agricultural Education) were amongst those who graced the occasion.



Dr. R Kalpana Sastry, Director (Acting) received the award from
Shri. Radha Mohan Singh, Hon'ble Union Minister of Agriculture and Farmers' Welfare, Government of India

Table 7.2. Awards received by the faculty members of NAARM

Recipient	Awards/ Fellowships	Date	Purpose	Agency
R. Kalpana Sastry	Fellow of the Society of Extension Education	31 Jan. 2017	Outstanding contribution in field of Research and Extension	Society of Extension Education (SEE), Agra.
BS Sontakki	Fellow of the Society of Extension Education, Agra	31 Jan. 2017	Outstanding contribution in the field of agricultural extension education	Society of Extension Education, Agra.
PD Sreekanth	Distinguished Scientist Award	2016	Distinguished Scientist Award in the area of Geographical Information System	Venus International Foundation, Chennai, India
	Outstanding Scientist Award	2016	Outstanding Scientist Award-2016 from International Journal of Tropical Agriculture.	Venus International Foundation, Chennai, India
P Krishnan	Fellow of Andaman Science Association	10 Dec. 2016	In recognition of the R&D contributions for the development of Andaman and Nicobar Islands	Andaman Science Association, ICAR-CIARI, Port Blair
SP Subash	Best paper award	31 Jan. 2017	Best paper	8th National Extension Conference
MB Dastagiri	Mother Teresa Priyadarsani Award	24 Sep. 2016	For outstanding research achievements	National Economic and Social Development
	Life Time Achievement Award	10 Dec. 2016	For outstanding contribution in the fields of Agriculture, Social, Plant, Environment, Co-operatives & Technology	Genesis Urban and Rural for Development Society
	Star of Asia Award	21 Dec. 2016	For outstanding research achievements	International Institute of Education and Management
SP Subash & K Srinivas	Best Paper Presentation award	23 Nov. 16	Best paper presentation in the conference	Indian Society of Agricultural Economics
P Venkatesan	Best Extension Professional award	31 Jan. 2017	Best Extension Professional	Society of Extension Education, Agra

7.3. Recognitions

7.3.1. Responsibilities / Assignments outside NAARM

Balakrishnan, M

- IMC member 2016, Project Directorate of Poultry(PDP), Hyderabad
- Honorary Member 2016, Honorary Member for the Society for Bioinformatics and Biological Sciences (SBBS), Allahabad.
- Treasurer for NAARM Alumni Association, Hyderabad.
- Vice-President 2016, NAARM PG Alumni Association, Hyderabad

Ganesh Kumar, B

- Member, Departmental Promotion Committee for Scientists of Agricultural Economics discipline at ICAR-Central Institute of Fisheries Technology (CIFT), Kochi held on 30 Apr, 2016.
- Member, Institute Management Committee for ICAR-National Research Centre on Meat (NRCM), Hyderabad for three years (2017-2020).
- Co-Chairman for the Technical Session on 'Enabling governance mechanisms and policy initiatives' in the 8th National Extension Education Congress held at ICAR-NAARM, Hyderabad during 28-31 Jan, 2017.

Kalpana Sastry, R

- Panelist in Session on Opportunities for Agri-startups at First National Agripreneur Convention held on 9 Mar, 2017.
- Moderator in Panel discussion on Womens Day 50:50 by 2030.
- Expert Member, Committee for filing of petition on revocation of patent no. 232681 before appellate board patent, Telangana State Dept. of Agril and PIJSTAU.
- Mentor, Invited by SINE, IIT-M for their startup called SoilSens. SINE has been launched in collaboration with SAP India this program titled S-Cube. The Program is designed to assist technology-based start-ups that are developing

for-profit business solutions with a clear social and/or environmental impact. SoilSens is a start-up of group of Ph.D. students from IIT Bombay's Electrical Engineering department who have developed a low cost sensor that can give various soil parameters such as temp, humidity, pH etc. As a mentor, the time commitment is at least 4 hours of mentoring per month for a period of 3 months, and virtual support on email or phone, SINE-IIT-M.

- Guest of Honor, Inaugural Session, ICAR Sponsored Short Course on "Reshaping Agriculture and Nutrition Linkages for Food and Nutrition Security", held at ICAR-CRIDA, Hyderabad on 17 Nov, 2016
- Chief Guest, National Seminar on "Financing and Sustaining Rural Agribusiness Enterprises–A Bottom of the Pyramid Approach ", School of Agribusiness Management, College of Agriculture, PJTSAU, Hyderabad on 18 Nov, 2016.
- Invited panelist of Jury, to judge the best technologies as part of technology Showcase International Knowledge Millennium Conference IKMC2016, IKP Knowledge Park in Oct 2016.
- Chief Guest, Inaugural Session of training programme on "Recent Techniques in Molecular Microbiology", Agri-Biotech Foundation (ABF) on 20-25 Jun, 2016.
- Member of Committee for formulation of guidelines for Foundation Day Awards (For Lifetime Achievement, Best Farmer, Best Research Centre, Best College etc), PJTSAU Hyderabad.
- Chief Guest, National Science Day, and delivered a talk on "Invention to Innovation in Agriculture -The role of IPRs", ICAR-DPR on 28 Feb, 2017.
- Chief Guest, Valedictory Session. For 4-day Programme on Values in Life; Talk on Values based Education and Women Empowerment. Hyderabad, Prajapita Brahma Kumaris Ishwariya Vishwa Vidyalaya on 25 Feb, 2017.
- Guest of Honour, International Knowledge

- Millennium Conference Roundtable on "Measuring Innovation Impact" on 24 Oct, 2016 at IKP Knowledge Park.
- Panelist in Session on Opportunities for Agristartups at First National Agripreneur Convention on 09 Mar, 2017.
 - Member of Consultative Group, GI Registry, invited as a member of Consultative Group with special emphasis on technical requirements to ascertain the correctness of particulars furnished in a statement of case referred in the GI Applications Details: 551: Zardalu Mango; 552: Shahi Litchi of Bihar; 553: Katarni Rice and 554: Magahi Paan, NAARM.
 - Stewardship of PGD-TMA programme including initiating MoU with University of Hyderabad, admission and developing resource materials etc.
 - Member-Secretary, Research Advisory Committee, at ICAR NAARM, Hyderabad.
 - Board Member, Fellow STEM, from Jan 2012 till date.
 - Invited as Referee, for evaluation of research papers in these journals (TFSC; Food Policy); African Journal of Agricultural Research; Journal of Intellectual Property; Springer: Technology Analysis & Strategic Management, Issues in Business Management and Economics, Elsevier Publications.
 - Expert Member, Legal Matters relating to Intellectual Property Rights Committee, and Traditional Knowledge associated with Medicinal Plants, Conservation and Bio-prospering of Telangana State, Telangana State Biodiversity Board, Government of Telangana in Nov, 2016.
 - ICAR representative on the Board of Management, KVAFSU, Bidar (till December 2016),
 - Invited as panelist/ speaker, platforms facilitated by CII, TERI, ABLE, RIS, ASCI Technology consortia, ICAR institutes (NDRI, DOR,), SAUs and other partners of NARS, CII, and other non-ICAR institutes
 - Scientific Advisor, Empaneled member as Scientific Advisors as per Rule 103 of the Patents Rules, 2003 to offer technical assistance to various Courts in India under Section 115 of the Patents Act, 1970 since July 2010, Patent Office, Govt. of India
- Kareemulla, K**
- Member, AP Agriculture Commission, Member Secretary, Rainfed Agriculture and Agriculture Technologies Committees, Chairman, AP Agriculture Commission & Chairman, Centre for Economic and Social Studies, Hyderabad during 14 -16 Oct, 2016
 - Member Secretary, Rainfed Agriculture and Agriculture Technologies Committees in AP Agriculture Commission & Chairman, Centre for Economic and Social Studies, Hyderabad during 14-16 Oct, 2016.
- Krishnan, M**
- Member, Institute Management Committee during 2017-19.
 - Vice-President, AERA, New Delhi during 2017–2019.
 - Vice-President, ISAM, Hyderabad.
 - Chaired a session on Markets, Consumer preferences and Nutrition in 24th Annual Conference of Agricultural Economics Research Association at IVRI, Bareilly, UP from 15-17 Dec, 2017.
- Krishnan, P**
- Invited Expert, for the National Dialogue on Mainstreaming Biodiversity into Fisheries Sector and presented a lecture on "Mapping Ecologically Sensitive Areas: Expanding areas under spatial conservation measures", held at National Biodiversity Authority, Chennai on 25 Nov, 2016.
 - Invited Expert for Preparation of Island Fisheries Development Plan for Andaman and Nicobar Islands, ICAR-Central Island Agricultural Research Institute (CIARI), Port Blair held on 12 Dec, 2016.
 - Co-convener for a technical session during 8th

National Extension Education Congress held at NAARM, Hyderabad on 28 Jan, 2017.

Manju Gerard

- Member, ITMC, Member, Institute Technology Management Committee, CRIDA, Hyderabad held during 27 Oct, 16-31 Mar, 17.
- Member, Institute Technology Management Committee, CRIDA from 27 Oct, 2016-31 Mar, 2017.

Meena, PC

- Convener for session on theme- "Nutritional Security in Agriculture" in the 8th National Extension Education Congress held at ICAR-NAARM during 28-31 Jan, 2017.

Ranjit Kumar

- Chairman for the Technical Session on 'Supply and value chain related issues' in the 8th National Extension Education Congress held at ICAR-NAARM, Hyderabad during 28-31 Jan, 2017.

Sanjiv Kumar

- Rapporteur for technical session-IV in 23rd Meeting of ICAR Regional Committee II held at ICAR-NAARM, Hyderabad during 24-25 Jun, 2017.
- Convener for session on theme 'Supply and value chain related issues' in 8th National Extension Education Congress held at ICAR-NAARM during 28-31 Jan, 2017.
- Coordinator for Brain Storming Session in Policy Workshop on Strategies in adopting Technology Enhanced Learning in Agricultural Education during 14-15 Mar, 2017.

Senthil Vinayagam, S

- RAC Member, Research Advisory Committee, CSR & TI, Berhampore, WB, during 2014-17, Central Silk Board.

Sivaramane, N

- Rapporteur for technical session-III in 23rd Meeting of ICAR Regional Committee II, 2016, held at ICAR-NAARM, Hyderabad during 24-25 Jun, 2016.

- Coordinator for Brain Storming Session in Policy Workshop on Strategies in adopting Technology Enhanced Learning in Agricultural Education during 14-15 Mar, 2017.
- Convener for session on theme 'Innovations, technologies and good extension practices to promote nutrition-sensitive agriculture' in 8th National Extension Education Congress held at ICAR-NAARM during 28-31 Jan 2017.

Sontakki, BS

- Member of Extension Education Council, UHS, Bagalkot, to guide the extension education activities from 2017-2019.
- Member of Institute Management Committee, advisory role on the activities of ATARI, ICAR-ATARI (Zone V), Hyderabad during Mar 2017.
- Fellow of the Society of Extension Education, Agra for Outstanding contribution in the field of agricultural extension education by Society of Extension Education, Agra on 31 Jan, 2017.
- Member of Extension Education Council, UHS, Bagalkot, 2017-2019, to guide the extension education activities, UHS, Bagalkot.
- Member of Institute Management Committee, ICAR-ATARI (Zone V), Hyderabad Mar, 2017. Advisory role on the activities of ATARI, ICAR-ATARI (Zone V), Hyderabad.

Soam, SK

- Special Secretary, Regional Workshop on Risk Communication MoEF&CC under UNEP-GEF held on 04-05 Apr, 2016.
- Expert, Project development on medicinal plants, National Medicinal Plants Board, 06 May 2016.
- Chairman, WTO and its implications on Indian Agriculture, Directorate of Agriculture and Food Production, Govt of Odisha, Bhubneshwar, during 25-26 Jul, 2016.
- Member, Consultative Group, Registrar of Geographical Indications, Govt. of India, from 22 Aug, 2016-07 Sep, 2016
- IPR Expert member, Fixation of upfront license fee and royalty for sorghum lines, hybrid seed,

genetic stock & transgenic material & Several MoUs and Tripartite agreements were also finalized related to several sorghum products and roti making machine, Institute Technology Management Committee (ITMC) of ICAR-Indian Institute of Millets Research (IIMR), Hyderabad during 24 May 16, 31 Aug-30 Sep, 2016, 16 Dec. and 16 & 07 Feb 2017.

- IPR Expert member, Patenting of 'IOPR controlled pollination process and its special device for oil palm', Institute Technology Management Committee (ITMC) of ICAR-Indian Institute of Oil Palm Research (IIOR), Peddavegi, West Godavari District, AP held on 29 Jul, 16.
- IPR Expert member, IPR Expert member for Directorate of Poultry, Institute Technology Management Committee (ITMC) of ICAR-Directorate of Poultry held on 13 Oct, 16.
- Major Resource Person, Training Programme on 'WTO and its implications on Indian Agriculture', held at Directorate of Agriculture and Food Production, Govt of Odisha, Bhubneshwar, during 25–26 Jul, 16.
- Member, Editorial Advisory Board, Amity Journal of Agribusiness, Editor-in-Chief, Amity University, Noida, during Aug, 16.
- Invited Expert-Expert advice provided to NRC Meat on patent application 'Kebab making processes, ICAR –NRC MEAT, HYDERABAD during 28–31 Dec 16.
- Invited Expert-Expert advice provided to State WTO Cell, Govt. of Odisha for GI registration of 'Horn Craft', a heritage product of 'Maharana Caste' of Parlakhemundi, district Gajapati, Odisha, Officer-in-Charge, State WTO cell, Govt. of Odisha on 29 Nov, 16.

Sandhya Shenoy, N

- Judge for Kendriya Vidhyalaya Sangathan, National Level 43rd Jawaharlal Nehru Science, Mathematics and Environment Exhibition for Children at Kendriya Vidhyalaya, Gachibowli during 8–9 Apr, 2016.
- Member of Institute Management Committee, ICAR-ATARI (Zone V), Hyderabad, 2016-Advisory

role on the activities of ATARI, ICAR-ATARI (Zone V), Hyderabad.

- Chairperson, Gender and Economic empowerment" theme in Consultative Action Seminar on Gender agenda and Action Plan, at NIRD & PR, Hyderabad on 8 Mar, 2017.

Surya Rathore

- Executive Counsellor (Central Zone)-Advisory role in activities of the Society, Indian Society of Extension Education, IARI, New Delhi during 2016–2017.
- Judge for Kendriya Vidhyalaya Sangathan National Level 43rd Jawaharlal Nehru Science, Mathematics and Environment Exhibition for Children at Kendriya Vidhyalaya, Gachibowli during 8–9 April, 2016.
- Expert for conducting Group Discussions & Personal Interview for selection of candidates for PG Diploma in Rural Development Management at NIRD & PR, Hyderabad during June and Dec, 2016.
- Resource person in a Training programme on 'Enhancing Farmers' income under Wheat based Cropping Systems [Topic: Impact Assessment Studies in Wheat based Cropping Systems] organized by Directorate of Extension Education, Indore, RVSKVV, Gwalior (M.P) at College of Agriculture, Indore (M.P) on 7 Jan, 2017.

Thammi Raju, D

- Rapporteur during Brainstorming Workshop on Agricultural Research and Education Management Strategies for 2030 at NAARM, Hyderabad on 2 Sep, 2016.
- Rapporteur during XXIII Meeting of ICAR Regional Committee-II at NAARM, Hyderabad from 24-25 June, 2016.
- Rapporteur during 8th National Extension Education Congress at NAARM, Hyderabad on 28 Jan, 2017.

7.3.2. External Examiners

Balakrishnan, M

- External examiner-Evaluation of Ph.D. theses of students of Bharathidasan University, Chennai, TN during 2016.
- External examiner-Evaluation of Ph.D. theses of students of Karpagam University, Coimbatore TN during 2016.
- Centre Supervisor for (ARS Online Exam), online Examination NET (I), ASRB, New Delhi during 1-6 Aug, 2016.

Kalpana Sastry, R

- External Examiner for PhD students, Faculty of Agriculture, MPKV, Rahuri.
- External Examiner for PhD Thesis and Viva of the student, Shri. V. Raghvendra (05MBPH03), School of Management, University of Hyderabad.
- Dissertation Evaluator for dissertation of Mingma Sherpa (ID 2015-ILLM-28) in LLM degree, NALSAR University of Law, Hyderabad.
- Expert Reviewer-Project proposals in Biotechnology Ignition Grant (BIG) Scheme of Biotechnology Industry Research Assistance Council-Round 7 and 8, Biotechnology Ignition Grant (BIG) Scheme of Biotechnology Industry Research Assistance Council (BIRAC).
- Invited reviewer of project proposals under S&T for Women/Scheduled Caste Sub Plan" for proposals in J&K sector. SEED Division, DST.

Krishnan, M

- Examiner for conducting the Final Comprehensive Viva for MSc (Ag. Economics) students of 2014-16 batch, UAS, Dharwad@ Vijayapur on 24 Nov, 2016 (8 students).

Soam, SK

- Reviewed the research paper on 'Agricultural Geographical Indications in India' written by Dr Lalitha Narayan, Professor, Gujrat Institute of Developmental Research, Ahmedabad.
- Reviewed the research paper titled, 'Introducing the concept on intellectual property and its management to research scholars in

agriculture'. Paper submitted to NAAS journal 'Agricultural Research'

Sandhya Shenoy, N

- Expert for conducting Group Discussions & Personal Interview for selection of candidates for PG Diploma in Rural Development Management at NIRD & PR, Hyderabad in June and Dec, 2016.
- External Examiner for M. Sc. Thesis evaluation at PJTSAU, Hyderabad and PhD thesis evaluation at UAS, Dharwad in the year 2016-17.
- External Examiner for Master's level courses for CIFE, Mumbai and TNAU, Coimbatore during the period under report.

Sanjiv Kumar

- External examiner for Information Technology in Dairy Industry College of Dairy Science & Technology, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (Punjab).
- External examiner for subject- Operation research and management of Dairy Science College, Kalaburagi, Karnataka Veterinary and Animal Sciences University.

Thammi Raju, D

- Ph.D Examination paper setter, Thesis evaluation and Viva Voce, TANUVAS.
- M.V.Sc Thesis Evaluation, SVVU.
- Ph.D Thesis evaluation, IGNOU.
- M.Sc (Ag) Thesis evaluation, PJTSAU.

7.3.3. Participation of Faculty in Training/ Events as Resource Person

Balakrishnan, M

- National workshop on "Role of Information and Communication Technologies in Agriculture" organized by Dept. of CSE, Nandha College of Engineering, Erode, TN on 18 May 2016.
- National Level Seminar on "Current Trends in Biology and Bioinformatics Applications" organized by Department of Bio-Technology at Dr.B.R.R. Govt. Degree College, Jadcherla, Mahabubnagar District on 24 Nov 2016.

- Training program on Bioinformatics for Biotechnology Beginners organized by Department of Biotechnology at ICAR-IIRR, Hyderabad on 9 Feb 2017.

Dhandapani, A

- Research in Agricultural Statistics–Time to change gears in 18th National Conference of Agricultural Research Statisticians organized by ICAR-IASRI, New Delhi at Modipuram on 16 Dec 2016.
- “AICRP Information System” in XXV Annual Group Meeting on Floriculture organized by ICAR-DFR, Pune at Rajamundry on 29 Jun 2016.
- “Digitization of ICAR-AICRP Information and data for enabling data management” Invited talk in 4th Group Discussion of ICAR-AICRP on Fruits organized by AICRP on Fruits at IIHR, Bengaluru on 06 Jan 2017.
- “AICRP Automation System” in Tech. Session V, 2nd Nodal Officers Workshop at ICAR-IASRI, New Delhi on 24 Jan 2017.
- Test of Significance and Analysis of Variance at ICAR-NCIPM, New Delhi on 08 Aug 2016.
- Fundamentals of Design of Experiments at ICAR-NCIPM, New Delhi on 27 Feb 2017.
- Principles of Experiments organized by National Institute of Plant Health Management at Hyderabad on 31 Jan 2017.

Ganesh Kumar, B

- Lecture on ‘Livestock Based Livelihoods in Rural Areas’ in the Training Programme on ‘Management of Natural Resources for Sustainable Rural Livelihoods’ at NIRD&PR, Hyderabad on 27 May, 2016.
- Lecture on ‘Marketing Scenario and Alternate Marketing Systems in Fisheries’ in the Refresher Training Programme on ‘New Dimensions in Extension Management’ for middle level extension functionaries of Fisheries Departments at MANAGE, Hyderabad on 29 Jun, 2016.
- Lecture on ‘Marketing Strategy for Livestock Products’ in the Training Programme on

‘Entrepreneurship development through value addition in livestock products’ for VAS of Telangana State at TSMILD, Hyderabad on 25 Aug, 2016.

- Lecture on ‘Marketing Strategies to Increase the Fisheries Business’ in the Training Programme on ‘Advances in Fisheries Technologies and Extension Management for Fisheries Development’ for aqua-preneurs at MANAGE, Hyderabad on 26 August, 2016; 17 Nov, 2016 and 18 Jan, 2017.
- Lecture on ‘Livestock Marketing Strategies for Precision Dairy Farming’ in the training program on ‘Extension Management for Precision Dairy Farming’ for the extension functionaries of State Department of Animal Husbandry at MANAGE, Hyderabad on 21 Dec, 2016.
- Lecture on ‘Marketing Strategies to Increase the Fisheries Business’ in the Induction Training Programme on ‘Extension Management Approaches for Fisheries Development’ for newly recruited Fisheries Extension Officers from State Departments of Fisheries at MANAGE, Hyderabad on 23 Feb, 2017.
- Contact class of the course on ‘Research Methods in Agricultural Extension’ for the extension officers of the agriculture and allied departments enrolled for the PGDAEM of MANAGE, Hyderabad by State Agricultural Management & Extension Training Institute (SAMETI), at Hyderabad, Telangana on 13 Jul, 2016 and 26 Jul, 2016.
- Contact class of the course on ‘Sustainable Livelihood in Agriculture’ course for the extension officers of the agriculture and allied departments enrolled for the PGDAEM of MANAGE, Hyderabad by State Agricultural Management & Extension Training Institute (SAMETI), Andhra Pradesh at Hyderabad on 30 Sep, 2016.

Kalpana Sastry, R

- Resource Person, Mentoring Workshop for 2015-2016 Fulbright Applicants and Evaluator of 50 Applications for Senior Fellowship

in Agriculture domain, United States-India Educational Foundation (USIEF).

- Guest speaker for a session titled "Agribusiness Incubation" by Indian STEPs & Business Incubators Association (ISBAO at Startup Enablers Training Series ("Professional Course-Level 1") for Incubators, Accelerators etc. on 26 Jan, 2017.
- Invited Speaker on "R & D preparedness for Agri-Innovations" in Speaker series on Building an Agri-Enterprise: Trends & Funding Opportunity conducted by a-IDEA, NAARM TBI in association with Villgro on 18 Oct, 2016.
- Invited Speaker in a plenary session to address on "Science and Technology Parks: an engine for growth" at 20th International Annual Conference of the Asian Science Park Association (ASPA) on 20 Oct, 2016.
- Invited speaker on 'Opportunities for innovation as trigger for agri-startups' at Agri-Innovation Summit organized by TiE, Hyderabad and Satguru on 14 April 2016.

Kareemulla, K

- "Value chain for millets" in Model Training program on Sorghum at IIMR, Hyderabad on 26 Sep 2016.
- "Finance for farming" in CII-AP TEC at CII-AP Chapter, Guntur on 10 Dec 2016.
- "Water sheds and natural resource management in developing countries" in Watershed development for developing countries program at NIRD, Hyderabad on 25 May 2016.

Krishnan, M

- Guest Lecture on Economics of Fisheries Development in the context of food and nutritional security at NIRD, Hyderabad on 10 Nov, 2016.

Krishnan, P

- Delivered Key Note Address on "Current trends in coastal zone management- Inputs for evidence-based conservation planning" during National Workshop on "Biodiversity and

Conservation of Aquatic Resources", Tamil Nadu Fisheries University (TNFU), at Fisheries Training and Research Centre, Parakkai, KK District, Tamil Nadu, held during 10-11 Nov, 2016.

- Invited Lecture on "Environmental Clearance Process in India-Legal Context, Concerns and Way Forward" in the Mid-Career Training (MCT) program for Senior IFS Officers at Indira Gandhi National Forest Academy (IGNFA), Dehradun, on 24 Jan, 2017.

Manju Gerard

- Lecture on "Innovation, IPR & Technology Management" in Two Day National Seminar UGC DRS-1(SAP) on Frontiers in Microbial Biotechnology at Osmania University, Hyderabad, during 22-23 Feb, 2017.

Murthy, GRK

- International training program on Knowledge management at IARI, New Delhi during 3-4 Jun 2016.
- Training program at MANAGE, Hyderabad on 24 Aug 2016.
- Training program at MANUU, Hyderabad on 15 Nov 2016.
- Training program at EEI, Hyderabad on 9 Nov 2016.
- Adjunct faculty at College of Agricultural Engineering, Bapatla (AP) during 8-9 Mar 2017.
- Open Education week at VNR VJIT, Hyderabad on 27 Mar 2017.
- Brain storming workshop on 'Policy framing for upscaling farm machinery custom hiring' organized by ICAR- CRIDA at Hyderabad on 17 Oct 2016.
- Consultative workshop on "Impact of ICT on agricultural education in India" at ICAR- NAARM at Hyderabad during 8 -9 Aug 2016.

Ravichandran, S

- Key Note Address at National Statistics Day, Indian Statistical Institute, Chennai, held on 29 Jun, 16.
- Workshop on Krishi project at NAARM, Hyderabad on 24 Mar 2017.

- National Extension Education Congress (NEEC) on "Nutrition-Sensitive Agriculture: Changing Role of Extension" at NAARM, Hyderabad from 28-31 Jan 2016.
- National Statistics Day at Indian Statistical Institute, Chennai on 29 Jun 2016.

Senthil Vinayagam, S

- Lead Speaker in International Seminar on Open and Distance Learning for Sustainable Development in Agriculture (ODLSDA), TNAU, during 24-25 Nov, 16.
- Brainstorming Workshop on the Role of ATARIs in the development of Fisheries by NFDB at Hyderabad on 6 Apr 2016.
- GRI meet at IICT, Hyderabad on 14 Sep 2016.
- Best practices for sorghum cultivation and importance of value-addition at IIMR, Hyderabad on 21 Sep 2016.
- Workshop on Good Practices in Extension Research and Evaluation organized by CRISP & NAARM at Hyderabad from 29 Nov–2 Dec 2016.
- Workshop and Policy Dialogue on "Farmers Situation in Rainfed Areas with Special Emphasis on Pulses Based Cropping Systems" organized by MANAGE at Hyderabad from 30-31 Dec 2016.
- 8th National Extension Education Congress-2017 on "Nutrition-Sensitive Agriculture: Changing role of Extension" organized by SEE (Agra) at ICAR-NAARM, Hyderabad from 28-30 Jan 2017.
- Consultative Meet to identify the content for the Basic Module (Animal Husbandry Sector) of Certified Farm Advisor Program organized by MANAGE at Hyderabad on 25 Jan 2017.
- Interactive Workshop on "Promoting Agri-preneurship through Innovative Models" organized by TNAU at Coimbatore on 30 Mar 2017.
- Agribiodiversity for school children organized by BVB, Jubilee Hills at Hyderabad on 08 Dec 2016.
- WTO and International Trade organized by State WTO Cell, Directorate of Agri and Food Production, Govt. of Odisha at Bhubneswar on 25 Jul 2016.
- TRIPs and overview organized by State WTO Cell, Directorate of Agri and Food Production, Govt. of Odisha at Bhubneswar on 25 Jul 2016.
- GI and its implications for farmers with special focus on Odisha organized by State WTO Cell, Directorate of Agri and Food Production, Govt. of Odisha at Bhubneswar on 25 Jul 2016.
- Project Logical Framework/ AHP Analyser/ Stakeholder analysis [T+P] organized by VCRI, Namakkal, Off-campus DWRP Program at TANUVAS, Chennai from 20–23 Apr 2016.
- Logical Framework Approach organized by National Institute of Agricultural Extension Management (MANAGE) at Hyderabad on 23 May 2016.
- Agric. and TRIPs organized by National Institute of Agricultural Extension Management (MANAGE) at Hyderabad on 14 Jun 2016.
- GI and Implications for Indian farmers organized by National Institute of Agricultural Extension Management (MANAGE) at Hyderabad on 15 Jun 2016.
- SPS and TBT organized by National Institute of Agricultural Extension Management (MANAGE) at Hyderabad on 15 Jun 2016.
- Social media for effective sharing of agricultural knowledge at National Institute of Agricultural Extension Management (MANAGE), Hyderabad on 10 Sep 2016, 09 Nov 2016, 04 Jan 2017.
- Agricultural biodiversity organized by AP State Biodiversity Board at Hyderabad on 30 May 2016, 04 Jul 2016, 30 Dec 2016.

Soam, SK

- IPRs in agricultural biotechnology at Center for Excellence in Agri Biotechnology, SVPUAT, Meerut on 28 Aug 2016.

Sontakki, BS

- "Writing research proposals" at College of Dairy Science (KVAFSU), Kalaburgai during 04-05 Jul 2016.

- "Preparation of winning research proposals" at Indian Veterinary Extension Forum (IVEF) in Regional Workshop on "Mentoring Young Extension Professionals for conduct of Scientific Research" at College of Veterinary Science, Hyderabad during 04-05 Jul 2016.
 - "Communicating with the Public- Art and Science of Public Speaking" in Skill development program on "Communicating Science" at ICAR-CIFE, Mumbai during 07-08 Jul 2016.
 - "Communicating experimental data" in Course on Statistical tools used in IPM for the ICAR-NCIPM scientists and technical officers at NCIPM, New Delhi on 08 Aug 2016.
 - "Research project formulation & M&E of Horticultural Research and Extension Projects" in Fourth Faculty Development Program for Assistant Professors at University of Horticultural Sciences, Bagalkot on 27 Sep 2016.
 - "Writing digital media articles for online journals" in Training program on New media for development communication: Measuring tools and techniques at CAFT in Home Science, College of Home Science, PJTSAU, Hyderabad on 01 Jan 2016.
 - "Orientation on Process documentation of Extension Services" in Induction Training Program for Newly Recruited Fisheries Extension Officers from State Department of Fisheries and "Extension Management Approaches for Fisheries Development" at MANAGE, Hyderabad on 20 Nov 2016.
 - "Report writing skills" in On-campus Training on "Process Monitoring and Documentation Skills for Extension Professionals" at Extension Education Institute, Hyderabad on 26 Nov 2016.
 - "Training methods: Conceptual understanding" in International Training Program on Training Methodology for Development Professionals at NIRD&PR, Hyderabad on 19 Jan 2017.
 - Professional Development Program (Short-Term Course) for the faculty and Research Scholars drawn from Universities
 - Scientific Content Writing at Maulana Azad National Urdu University, Hyderabad on 15 Mar 2017.
 - Lecture on "Agri-clinic and Agri-business Centre Scheme" in ICAR Short course "Rural entrepreneurship development for farmers' empowerment" at Krishi Vigyan Kendra, Vijayapura, on 07 Jan, 2017.
- Sandhya Shenoy, N**
- International training program on Information Communication Technology for Rural Development (Feb 13-Mar 12, 2017) by CICT, NIRD at NIRD & PR, Hyderabad on 23 Feb 2017.
 - Sivaramane, N
 - Lecture on "Supply Chain Management in Agriculture and Allied Commodities" in the Training Programme on 'Supply Chain Management for Agriculture' at State Agricultural Management & Extension Training Institute (SAMETI), Govt. of Telangana, Hyderabad, on 30 Sep, 2016.
 - Lecture on "Advanced Statistical Analysis Using SPSS" in the Training Programme on 'Analytics Techniques for Social Sciences' at Administrative Staff College, Maulana Azad National Urdu University (MANUU), Hyderabad, on 17 Nov, 2016.
- Surya Rathore**
- UGC Refresher Course for College and University teachers [Topic: Project planning for sustainable development] organized by Department of Home Science, Faculty of Science, JNV University, Jodhpur at Jai Narayan Vyas University, Jodhpur (Rajasthan) on 15 Feb 2017.
 - International Program on Empowerment of Women for Rural Development organized by Ministry of External Affairs, Govt. of India, New Delhi at National Institute of Rural Development & Panchayati Raj, Hyderabad on 10 Feb 2016.
- Srinivas, K**
- Valuation of Technologies and also sensitization of ABIs in ZTMC meeting of Engg Division at CIAE Bhopal on 10 Apr 2016.

- "Valuation of Technologies" in Training program on IP and commercialization at IIHR Bangalore on 30 Aug 2016.

Thammi Raju, D

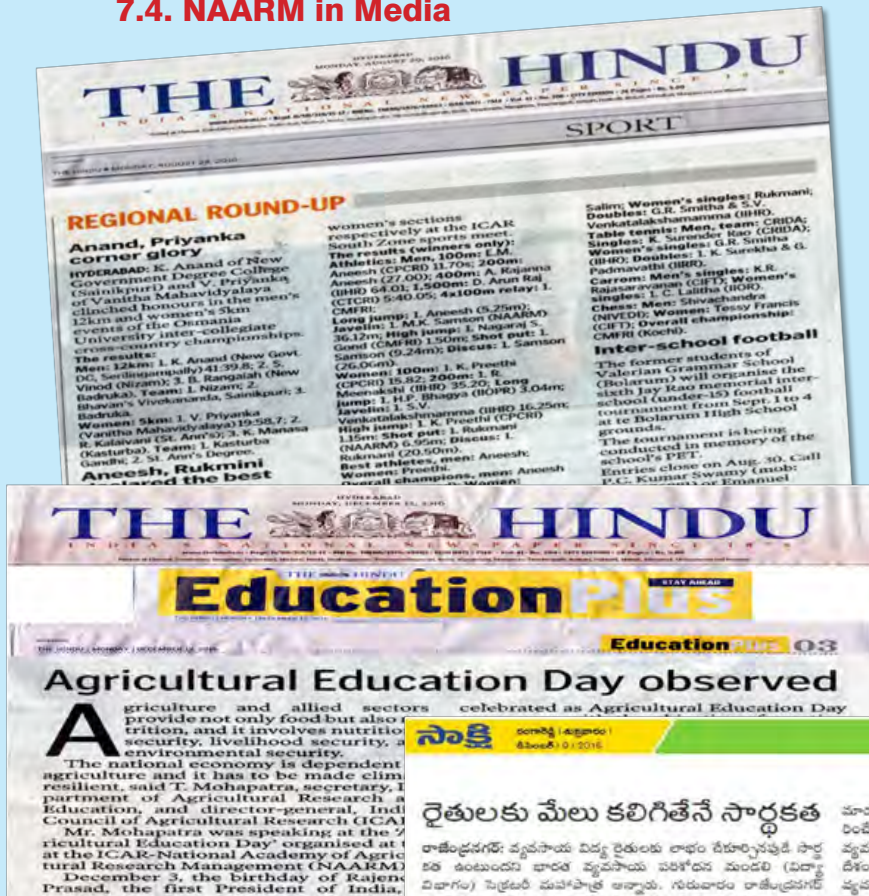
- "New media for Animal Husbandry in promotion of Ah technologies" in the program-New media for development communication -Measuring tools and techniques organized by CAFT, College of Home Science, PJTSAU at Hyderabad on 27 Sep 2016.
- "Innovative Teaching methods" in the program New media for development communication -Measuring tools and techniques organized by CAFT, College of Home Science, PJTSAU at Hyderabad on 27 Sep 2016.

Venkatesan, P

- Consultative Workshop "Opportunities for Youth in Agricultural Development" at MANAGE, Hyderabad on 29 Sep 2016.

- Training program "Institutional Innovations in Extension" in the session on "Institutional Innovations for advisory services in FPOs" at MANAGE, Hyderabad on 28 Nov 2016.
- ICAR Short course "Rural entrepreneurship development for farmer's empowerment" in the session on "Producer Companies in India-Experiences and Relevant Implications" at Krishi Vigyan Kendra, Vijayapura on 07 Jan 2017.
- "An analysis of Functioning of Farmer Producer Companies in Tamil Nadu" on 21st March 2017 in the Interactive Workshop on "Farmer Producer Companies: Status and Strategies for Sustainable Functioning" at Department of Agricultural Extension & Rural Sociology, AC&RI, (TNAU), Madurai from 20-21 Mar 2017.
- Workshop on "Approaches and lessons learnt from setting up FPOs" at ICRISAT, Hyderabad on 13 Mar 2017.

7.4. NAARM in Media





Chapter - 8
Personnel



Personnel

[Updated on 31.03.2017]

Research Management Positions

1. Dr. D Rama Rao, Director [upto 30.09.2016]
2. Dr. (Smt.) R Kalpana Sastry, Joint Director [and Acting Director from 1.10.2016]

SCIENTIFIC STAFF

Agribusiness Management Division

3. Dr. Ranjit Kumar
Head, ABM Division (from 31.12.2016)
4. Dr. GP Reddy
Principal Scientist
5. Dr. B Ganesh Kumar
Principal Scientist (& Head i/c ABM Division from 01.10.2016 to 30.12.2016)
6. Dr. N Sivaramane
Senior Scientist
7. Dr. Prem Chand Meena
Senior Scientist
8. Dr. Sanjiv Kumar
Scientist

Education Systems Management Division

9. Dr. M Krishnan
Head, ESM Division (from 01.10.2016)
10. Dr. GR Ramakrishna Murthy
Principal Scientist
11. Dr. D Thammi Raju
Principal Scientist
12. Dr. S Senthil Vinayagam
Principal Scientist
13. Dr. VV Sumanth Kumar
Scientist (on deputation with ICRISAT)

Extension Systems Management Division

14. Dr. Bharat S.Sontakki
Head, XSM Division (from 20.09.2016)
15. Dr. (Smt.) N Sandhya Shenoy
Principal Scientist (& Head i/c XSM Division till 19.09.2016)
16. Dr. VK Jayaraghavendra Rao
Principal Scientist
17. Dr. (Smt.) Surya Rathore
Principal Scientist
18. Dr. P Venkatesan
Senior Scientist

Human Resources Management Division

19. Dr. RVS Rao
I/c Head, HRM Division
20. Dr. P Ramesh
Principal Scientist (& Head i/c ESM & ABM Divisions till 30.09.2016)
21. Dr. KH Rao
Principal Scientist
22. Dr. Alok Kumar
Principal Scientist (from 01.10.2016)

Information and Communication Management Division

23. Dr. SK Soam, Head, ICM Division
24. Dr. A Dhandapani, Principal Scientist
25. Dr. S Ravichandran, Principal Scientist
26. Dr. M Balakrishnan, Principal Scientist
27. Dr. N Srinivasa Rao, Principal Scientist
28. Dr. PD Sreekanth, Senior Scientist
29. Sh. BS Yashavanth, Scientist

Research Systems Management Division

30. Dr. I Sekar, Head, RSM Division
31. Dr. K Srinivas, Principal Scientist
32. Dr. K Kareemulla, Principal Scientist
33. Dr. MB Dastagiri, Principal Scientist
34. Dr. P Krishnan, Principal Scientist (from 30.09.2016)
35. Dr. (Smt.) Manju Gerard, Principal Scientist (from 14.10.2016)
36. Sh. SP Subash, Scientist

ADMINISTRATIVE STAFF**Joint Director (Admn.) & Registrar**

1. Sh. Ashish Roy

Chief Finance & Accounts Officer

2. Sh. S George

Asst. Director (OL)

3. Dr. J Renuka

Administrative Officer

4. Sh. W Sreenivasa Bhat

Asst. Admn. Officers

5. Sh. PG Kohad
6. Sh. P Neelakantam
7. Sh. KR Ghanshyam

Private Secretaries

8. Sh. N Raghunath
9. Sh. P Anand Kumar
10. Smt. A Mercy

Junior Accounts Officer

11. Smt. N Vijayalakshmi

Assistants

12. Sh. M Dinesh
13. Sh. T Srinivas
14. Sh. G Raj Reddy
15. Sh. C Phani Raj
16. Smt. B Padma Saroja
17. Sh. P Srinivasu
18. Smt. G Jessie Ecclia

19. Sh. R Chandra Babu

20. Sh. C Julius Samuel

Personal Assistants

21. Sh. M Venkatesh
22. Sh. TV Ramadas
23. Smt. T Vanisri (on deputation with UIDAI)
24. Smt. Y Anuradha
25. Smt. S Sesha Sai
26. Smt. Rukmani Ammal

Upper Division Clerks

27. Sh. M Sridhar
(on deputation with UIDAI)
28. Smt. Y Gayathri
29. Sh. P Venkatesh
30. Sh. MK Samson
31. Smt. Rajashri Bokde
32. Sh. K Suryanarayana

Stenographers Grade III

33. Smt. K Radha Sujatha
34. Smt. S Shanthi
35. Smt. V Shailaja

Lower Division Clerk

36. Sh. P Swamy
37. Sh. M Narsing Rao
38. Sh. M Ashok
39. Sh. C Bikshapathi

TECHNICAL**Grade T-9 (Category-III)**

1. Dr. V Murali, Chief Technical Officer
(Garden Superintendent)
2. Dr. A Debnath, Chief Technical Officer
(Medical Officer)
3. Sh. Zameer Ahmed, Chief Technical Officer
(Manager, HS)
4. Dr. Ch Janardhan Rao, Chief Technical Officer
(Video cameraman)
5. Dr. MA Basith, Chief Technical Officer
(Jr. Farm Superintendent)

Grade T (7-8) (Category-III)

6. Sh. KV Kumar, Assistant Chief Technical Officer (Statistical Assistant)
7. Sh. P Namdev, Assistant Chief Technical Officer (Graphic-cum-visualizer)
8. Sh. P Vijender Reddy, Assistant Chief Technical Officer (Research Assistant)
9. Sh. Sohail Ahmad Khan, Assistant Chief Technical Officer (Junior Engineer-Civil)

Grade T-6 (Category-III)

10. Smt. G Aneeta, Sr.Technical Officer (Assistant Editor)
11. Sh. P Mohan Singh, Sr.Technical Officer (Computer Assistant)
12. Sh. Sham Bahadur, Sr.Technical Officer (Catering in-charge)
13. Sh. M Shekhar Reddy, Sr.Technical Officer (Dark Room Assistant)
14. Dr. Ahire Laxman Mahar, Sr.Technical Officer (Horticultural Technical Assistant)
15. Sh. M Ravi, Sr.Technical Officer (Photographer-cum-Artist)
16. Sh. Ravi Viswanathan, Sr.Technical Officer (Editor-cum-Information Officer)

Grade T-5 (Category-II)

17. Sh. N Naresh Kumar, Technical Officer (VCR-cum-Tele Cine Operator)
18. Smt. Savithri Murali, Technical Officer (Catering in-charge)
19. Sh. BSN Murthy, Technical Officer (Technician Electrical)
20. Sh. K Obulapathi, Technical Officer (Technician Electrical)
21. Sh. MK Shamshuddin, Technical Officer (Technician Electrical)
22. Sh. MK Sonkusare, Technical Officer (Electrical)
23. Sh. K Shivaiah, Technical Officer (Technician)
24. Sh. D Rajagopal Rao, Technical Officer (Media Operator)
25. Sh. S Rajukumar, Technical Officer (Electronic Computer Operator)

26. Sh. S Sunder Raj, Technical Officer (Media Operator)

27. Sh. T Laxman, Technical Officer (Driver)

Grade T-4 (Category-II)

28. Sh. ACP Rama Nageswara Rao Sr.Technical Assistant (Lineman)
29. Sh. Pitla Srinivas, Sr.Technical Assistant (Proof Reader)
30. Sh. G Muthyalu, Sr.Technical Assistant (Driver)
31. Sh. N Ashok, Sr.Technical Assistant (Driver)
32. Sh. Prashant Gaikwad, Sr.Technical Assistant (Binder)
33. Sh. N Prabhakar Rao, Sr.Technical Assistant (Plumber)
34. Sh. M Srinivasa Rao, Sr.Technical Assistant (Pump Driver)
35. Sh. K Veera Narasaiah, Sr.Technical Assistant (Carpenter-cum-Painter)

Grade T-3 (Category-II)

36. Sh. BK Venkatram, Technical Assistant (Pump Driver)
37. Sh. R Siva Prasad, Technical Assistant (Driver)

Skilled Support Staff

1. Sh. S Swamy (Asst. Gestt. Operator)
2. Sh. Sirigiri Venkatesham (Xerox machine Operator)
3. Sh. Phool Kumar
4. Sh. P Balraj
5. Smt. B Santhamma
6. Smt. S Shakuntala
7. Smt. B Bharathamma
8. Sh. S Jangaiah
9. Sh. Kumba Satyanarayana
10. Sh. K Pentaiah
11. Sh. P Yadaiah
12. Sh. G Pentaiah
13. Sh. J Chandraiah
14. Sh. M Krishnaiah
15. Sh. R Sattaiah
16. Smt. Indirapati Bharatamma

17. Sh. C Chandramouli
18. Sh. G Dasaratha
19. Smt. Nazia Parveen
20. Sh. L Satyanarayana
21. Smt. N Sukunamma
22. Smt. M Yadamma
23. Smt. C Narsubai
24. Smt. C Kausalya
25. Sh. M Ganesh Kumar
26. Sh. Chilumula Venkatesham
27. Sh. Sirigiri Narsimha
28. Sh. Kyasam Satyanarayana
29. Sh. B Premdas
30. Smt. A Saroja
31. Sh. S Nayab Rasool
32. Sh. B Ashok
33. Sh. K Daniel

Transfers

1. Sh BD Phansal,
Chief Admn. Officer–Transferred w.e.f.
07.06.2016 (FN) to ICAR-CRIDA, Hyderabad
2. Sh DD Verma,
Comptroller–Transferred w.e.f. 10.06.2016 (AN)
to ICAR-NDRI, Karnal
3. Sh Debasis Moitra,
Chief Admn. Officer–Transferred w.e.f.
13.06.2016 (AN) to ICAR-IVRI, Izatnagar
4. Dr. Manoj P Samuel,
Principal Scientist (Agribusiness Management–
Strategic Management–Transferred w.e.f.
18.07.2016 (AN) on selection as Head, Division
of Engineering at ICAR-CIFT, Cochin
2. Sh. Ashish Roy,
Joint Director (Admn.) & Registrar–joined on
30.05.2016(FN) on transfer from ICAR-CIFE,
Mumbai
3. Sh. S George, Chief Finance & Accounts Officer–
joined on 02.07.2016 (AN) on transfer from
ICAR-NDRI, Karnal
4. Sh. Yashavanth BS, Scientist (Agricultural
Statistics) joined w.e.f. 05.07.2016
5. Dr. Bharat S Sontakki, Principal Scientist
(Agricultural Extension) joined on selection as
Head, Extension Systems Management Division
w.e.f. 20.09.2016 (FN)
6. Dr. Nukella Srinivasa Rao,
Sr. Scientist from ICAR-IASRI, New Delhi joined
on selection as Principal Scientist (Extension
Information Systems) w.e.f. 26.09.2016 (FN)
7. Dr. P Krishnan, Sr. Scientist from ICAR-CIARI,
Port Blair joined on selection as Principal
Scientist (Agricultural Research Management)
w.e.f. 30.09.2016 (FN)
8. Dr. M Krishnan, Principal Scientist from ICAR-
CIFE, Mumbai joined on selection as Head,
Education Systems Management Division w.e.f.
01.10.2016 (FN)
9. Dr. Alok Kumar, Sr. Scientist from ICAR-IINRG,
Ranchi joined on selection as Principal Scientist
(Agricultural Extension) w.e.f. 01.10.2016 (FN)
10. Dr. Manju Gerard, Associate Professor from
SHIATS, Allahabad joined on selection as
Principal Scientist (Technology Management)
w.e.f. 14.10.2016
11. Dr. Ranjit Kumar, Principal Scientist (Agricultural
Economics) joined on selection as Head,
Agri Business Management Division w.e.f.
31.12.2016 (FN)

Appointments / New Joining

1. Sh. W Sreenivasa Bhat,
Administrative Officer–joined on 17.05.2016
(FN) on transfer from ICAR-IIOPR, Pedavegi

Promotions

1. Dr. M Balakrishnan, Sr. Scientist (Computer
Application in Agriculture) promoted as
Principal Scientist under CAS w.e.f. 29.12.2014
2. Sh. BK Venkatram, Senior Technician (Pump
Driver) promoted as Technical Assistant w.e.f.
29.06.2014

3. Sh. R Siva Prasad, Senior Technician (Driver) promoted as Technical Assistant w.e.f. 29.06.2015
4. Sh. S Sunder Raj, Sr.Technical Assistant (Media Operator) promoted as Technical Officer w.e.f. 19.02.2016
5. Sh. T Laxman, Sr.Technical Assistant (Driver) promoted as Technical Officer w.e.f. 29.06.2016
6. Sh. K Veera Narsaiah, Technical Assistant (Carpenter cum Painter) promoted as Sr.Technical Assistant w.e.f. 29.06.2016
7. Sh. M Srinivasa Rao, Technical Assistant (Pump Driver) promoted as Sr.Technical Assistant w.e.f. 29.06.2016
8. Sh. N Prabhakar Rao, Technical Assistant (Plumber) promoted as Sr.Technical Assistant w.e.f. 29.06.2016
9. Sh. Prashant Gaikwad, Technical Assistant (Binder) promoted as Sr.Technical Assistant w.e.f. 29.06.2016
10. Sh. G Muthyalu, Technical Assistant (Driver) promoted as Sr.Technical Assistant w.e.f. 29.06.2016
11. Sh. N Ashok, Technical Assistant (Driver) promoted as Sr.Technical Assistant w.e.f. 29.06.2016
12. Sh. KR Ghanshyam, Assistant promoted through Limited Departmental Competitive Examination as Assistant Admn.Officer w.e.f. 30.09.2016

Retirements

1. Sh. L Ramesh, Technical Officer (Electrician cum Plumber)–superannuated on 30.06.2016
2. Smt. G Anasuya, SSS–superannuated on 30.06.2016
3. Smt. T Jangamma, SSS–superannuated on 31.08.2016
4. Dr. D Rama Rao, Director–superannuated on 30.09.2016

Deputation

1. Sh. P Venkatesh, UDC relieved w.e.f. 14.12.2016 (AN) to join the post of Assistant on deputation with ICAR-ATARI, Hyderabad for a period of two years.

Obituary

1. Sh. Khalid, SSS–Expired on 08.08.2016



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