

8th GCRA International Conference on INNOVATIVE DIGITAL APPLICATIONS FOR SUSTAINABLE DEVELOPMENT

University of Agricultural Sciences, Bengaluru, India

January, 5th to 7th, 2016

Proceedings and Recommendations



Organised by



University of Agricultural Sciences, Bengaluru
Global Communication Research Association



In Collaboration with



Photo Arcade of 8th GCRA International Conference



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Karnataka Vocational Training and Skill Development Corporation
Karnataka Science and Technology Promotion Society
National Bank for Agriculture and Rural Development
Karnataka State Natural Disaster Monitoring Centre
Canara Bank, Bengaluru
Indian Space Research Organization
Karnataka State Khadi Village Industries Board
Karnataka State Remote Sensing Application Centre
Department of Agriculture, Government of Karnataka
Department of Horticulture, Government of Karnataka
Karnataka State Agricultural Marketing Board
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PREFACE

Creativity and innovation are part of every revolution recorded in the history of human development. In the present ICT era, several attempts have been made in application of digital innovations for sustainable development including developing regions of the world. But the dissemination and utilization of digital innovations on a sustainable scale is yet to reach the satisfactory level in the non-commercial and rural arena. This situation necessitated for effective dialogue on innovative digital applications and strategies towards sustainable development through organising the 8th GCRA International Conference on Innovative Digital Applications for Sustainable Development during 5th to 7th January, 2016 by University of Agricultural Sciences, Bengaluru and Global Communication Research Association, Australia in association with various organizations.

We are pleased to note that the call for abstracts got the overwhelming response with over 400 abstracts contributed by extension / communication professionals from 18 Indian States and 14 Countries across the globe. There were four lead papers sessions in which twenty invited speakers make their presentations. Out of the 333 papers selected for oral presentation, 127 papers were presented in the conference in the twelve technical session arranged for the delegates presentation. The proceedings and recommendations of the 8th GCRA conference details the deliberations and salient recommendations of the individual sessions.

We are very much grateful to Shri. Siddaramaiah, Hon'ble Chief Minister of Karnataka for inaugurating the important conference and Shri. Krishna Byregowda, Hon'ble Minister for Agriculture, Govt. of Karnataka for presiding the inaugural function. We are thankful to Dr. Indrajit Banerjee, Director, Knowledge Societies Division for delivering the Key Note Address with a resounding start. We are pleased place on record our gratitude to Dr. H. Shivanna, Vice-Chancellor, UAS, Bengaluru for extending invaluable support from the very beginning for organising this conference. We sincerely thank Dr. M.B. Chetti, Assistant Director General (Education), ICAR, New Delhi for his timely guidance in planning and organising of the conference.

The success of the conference was ensured with greater collaborative partnership with the various organizations namely, Indian Council of Agricultural Research, New Delhi, Karnataka Vocational Training and Skill Development Corporation, Karnataka Science and Technology Promotion Society, National Bank for Agriculture and Rural Development, Karnataka State Natural Disaster Monitoring Centre, Canara Bank, Bengaluru, Indian Space Research Organization, Karnataka State Khadi Village Industries Board, Karnataka State Remote Sensing Application Centre, Department of Agriculture, Government of Karnataka, Department of Horticulture, Government of Karnataka, Karnataka State Agricultural Marketing Board, Zuari Agro Chemicals Limited, Indian Farmers' Fertiliser Cooperative Limited (IFFCO), KrishakBharati Cooperative Limited, Bluejay Enterprises Private Limited, Institution of Agricultural Technologists and Doordharshan Kendra, Bengaluru as media partner. On behalf of the UAS, Bengaluru and GCRA, Australia, we thank all these organizations for extending technical / financial support for the conference.

The financial assistance received from Research and Development Fund of National Bank for Agriculture and Rural Development (NABARD) towards publication of proceedings and Recommendations of the Conference is gratefully acknowledged.

Our thanks are due to all the Chairpersons, Co-chairperson, members and conveners of National and International committees for their dedicated contribution in the successful conduct of the conference. Appreciation are due to the Post Graduate Students of the Department of Agricultural Extension for their support in the critical stages of the conference. We would like to place a record on the immense contribution from the highly learned academics and delegates across the country and globe for highlighting the significant innovative digital applications and innovative ideas that attracts the attention of the policy making bodies towards utilizing the ICTs for sustainable development.

We are sure that this publication would facilitate the planners, researchers, academics, administrators and extension personnel in devising effective and innovative strategies for up scaling digitalization for sustainable development.

N.R. Gangadharappa

BACKGROUND

Can a better world be achieved via better communication? This is a perpetual question concerning communication researchers and practitioners for centuries. It is our vision that free and balanced communication between communities, nations and civilisations is the path to a peaceful and prosperous globe. Communication is closely related with the development of each individual. It is also interrelated with community and global contexts. As information communication technology brings people around the world closer, the need for human to understand and share meaning between each other becomes more urgent than ever. The existing global communication order is still far from satisfying this requirement. There are problems of dominance of the elite-clubs, digital divide, intercultural stereotyping and discrimination, the dilemma of regulation versus liberty, etc. Keeping these in view, the University of Agricultural Sciences, in Association with Global Communication Research Association, Australia, organised the 8th GCRA International Conference on “Innovative Digital Applications for Sustainable Development” at University of Agricultural Sciences, Bengaluru during 5th to 7th, January, 2016.

Major Collaborators of the Conference

1. Indian Council of Agricultural Research, New Delhi.
2. Karnataka Vocational Training and Skill Development Corporation
3. Karnataka Science and Technology Promotion Society
4. National Bank for Agriculture and Rural Development
5. Karnataka State Natural Disaster Monitoring Centre
6. Canara Bank, Bengaluru
7. Indian Space Research Organization
8. Karnataka State Khadi Village Industries Board
9. Karnataka State Remote Sensing Application Centre
10. Department of Agriculture, Government of Karnataka
11. Department of Horticulture, Government of Karnataka
12. Karnataka State Agricultural Marketing Board
13. Zuari Agro Chemicals Limited
14. Indian Farmers’ Fertiliser Cooperative Limited (IFFCO)
15. KrishakBharati Cooperative Limited
16. Bluejay Enterprises Private Limited
17. Institution of Agricultural Technologists
18. Doordharshan Kendra, Bengaluru as Media Partner

Objectives of the Conference

The 8th GCRA International Conference aimed to provide a forum of inter-civilizational exchanges and to promote communication within under-represented areas, and between under-represented areas and over-represented areas. The conference committee invited the papers for the 8th GCRA International Conference which reflect the conference theme of “**Communication · Education · Development · Innovation**” and fall within the following sub themes.

1. Traditional media: Role, relevance and innovations
2. Modern media in agricultural communication
3. Information Communication Technology: Application, role and innovations in agricultural extension and rural development
4. Recent advances in Information Technology and its application in Agricultural Knowledge, Skill Development and Information Management.
5. Expert systems, Decision Support Systems(DSS), Software development and Programming for agricultural extension, communication and Vocational Education.
6. IT Acts and policy framework: Concerns, issues and challenges
7. Digital Communication strategies for Joint Forest Management and Natural Resource Management
8. Content generation and Skill Development for ICT based applications
9. Digital Applications in Mass Media

Abstracts and Full Length Papers

More than 400 papers in the nine identified themes were received from different parts of the country and abroad of which 333 papers were accepted for oral presentation in the conference. Over 100 full length papers of the accepted papers were received for the conference.

Participation by the Delegates

More than 300 participants from disciplines of extension education, communication and mass media from State Agricultural Universities, ICAR institutes, Central Agricultural university, Development Departments which involve scientists, extension personnel and students from different parts of the country and from abroad. A good number of retired professionals also participated in the three days conference.

INAUGURAL PROGRAMME



The inaugural programme of the conference was held on 5th January 2016, at the Kuvempu Auditorium of the University of Agricultural Sciences, Bengaluru. Shri. Siddaramaiah, Hon'ble Chief Minister of Karnataka inaugurated the 8th GCRA International Conference. Sri. S.R. Patil, Hon'ble minister for IT&BT, Govt. of Karnataka and Sri. P.T. ParameshwarNaik, Hon'ble Minister for Labour, Govt. of Karnataka were the Chief Guests of the inaugural programme.

Prof. H. Shivanna, Hon'ble Vice-Chancellor of UAS, Bengaluru welcomed the guests, delegates, officers, teachers and students of the university and media personnel. Following the welcome address, Dr. N.R. Gangadharappa, Organising Secretary briefed about the conference. Sri. Krishna Byre Gowda, Hon'ble Minister for Agriculture, Govt. of Karnataka presided over the inaugural programme and delivered the presidential address.

Shri. Siddaramaiah, Hon'ble chief minister in his inaugural address said that UAS Bengaluru as the foremost agricultural universities in the country and has contributed significantly to the sustainable growth and development of the Agriculture sector and commended it for organising 8th international conference on **"Innovative Digital Applications for Sustainable Development"**. He observed that agriculture sector, like other sectors, has been benefitted from ICT revolution and the latest innovation in ICT has expanded the development of Agriculture sector in different forms. Use of mobile phones as a platform for exchanging information through SMS, ICT models and tools can be used to provide localised forecasts against weather related adversaries, help create better linkages between the markets and farmers, thus increasing the farmers' share in consumer's rupee.

To overcome the limited manpower coupled with traditional system of extension, ICTs and digital innovations are the only saviours which can come to the rescue. He also felt that it is important to

empower poor farmers with information and communication assets and services that will increase their productivity and income as well as protect their food security and livelihoods. To achieve this basic communication infrastructure in assessing crucial information are essential for timely decisions. He asked the scientist to explore for providing timely and tailor made scientific information and intelligence to the farmers using ICTs. Finally he wished the 8th GCRA International conference on **Innovative Digital Applications for Sustainable Development** a grand success and expected the conference as an opportunity for the scientists, scholars and the farming community to share their knowledge and experiences to address various issues in agriculture with the effective use of ICT.



In the Key Note Address, Dr. Indrajit Banerjee, Director, Knowledge Societies Division, UNESCO said that knowledge and information have a significant impact on people's lives. The sharing of knowledge and information, particularly through Information and Communication Technologies (ICTs) has the power to transform economies and societies. He mentioned over the past decade, Information and Communication Technologies (ICTs) have also revealed their potential to enable human empowerment and the Sustainable Development Goals set by the United Nations. Further, he observed that Internet plays a major role with over four billion users and mobile platform is increasingly the primary means of accessing it in developing countries too. He opined that on

development of Internet infrastructure around the globe has spurred economic growth and social development on all continents and innovative mobile solutions are helping to overcome socio-economic challenges.

The UNESCO, in collaboration with ITU, has set up the Broadband Commission for Digital Development to meet Sustainable Development Goals (SDGs) and views that access to information is essential as a precondition for the development of Knowledge Societies. Accordingly, UNESCO's programmes in this area, encompass the vision of universal access that enhances the abilities of the societies to seek and receive open scientific, indigenous and traditional knowledge, and also to produce contents in all forms.



UNESCO's actions on connecting the Dots, ICT and Disabilities, the Open Solutions programme, and Internet and the Radicalization of Youth are some of the key initiatives launched in past two years. Further, initiative on Internet and the radicalization of the youth, UNESCO is examining how access to knowledge could be instrumental in changing the ways young men and women perceive peace and sustainable development and help them shun violence and extremist ways. UNESCO has launched in 2014, the YouthMobile Initiative, which aims at encouraging creativity and innovation by engaging a critical mass of young people to acquire basic technical skills and confidence to

develop, promote, and sell locally relevant mobile applications (apps) that address local issues of sustainable development.

Access to knowledge as a right still require adapting existing legal and regulatory frameworks. Enhancing the quality and linguistic diversity of content, developing sustainable digital heritage, encouraging local content online, promoting special services for marginalized groups: there are just some other areas that require more attention, and that UNESCO is and will continue to work on.

During the programme three conference publications,viz. Compendium of Abstracts and Compendium of Keynote & Lead Papers of the 8th GCRA Conference and one Compact Disc on Proceedings of the Full Length Papers submitted to the conference were released.

Sri. Krishna ByreGowda, in his presidential address applauded the University of Agricultural Sciences, Bangalore for organising 8th GCRA Conference. He said that, “In this era of knowledge and information, the agricultural extension agent - farmer ratio is very low and farmers are ill-equipped to deal with changing market trends and opportunities. He observed that most of the agricultural advice is generic to block-levels and rarely deals with plot level advice concerning the requirements of individual farmers. Therefore there is a strong need to align the needs of farmers, their existing experience and knowledge base with modern agricultural trends and practices. In this context the 8th GCRA conference is of greater importance. He asked the farm universities to come out with innovative strategies to overcome problems in transfer of agricultural technologies by utilising ICT tools. He wished the that the conference serves as a platform for all of us to ameliorate condition of farmers and felt confident that the outcome of the conference will be useful for effective information management for overall development of agriculture in the state”.



Dr. A.K. Singh, DDG (Agril.Extn) in his address stressed on the importance of strengthening and extensive use of Agricultural Knowledge and Innovation system through e-empowering agricultural outreach institutions. He observed that mobile applications for agricultural extension are growing, but still have a great potential to be further developed and spread. India's extension system includes several providers of mobile applications for agriculture including non-profit organisations and commercial agencies. Hence, capacity building of all stakeholders in agriculture is very essential at this stage.



Dr. Dipak De, President of the Global Communication Research Association, Australia proposed vote of thanks.

Proceedings and Recommendations of the Technical Sessions

Date: 5 th January, 2016	
11.00 AM to 1.00 PM	: Technical Session A: Presentation by Lead Speakers
Venue	: Auditorium, North Block
Chair	: Dr. V. Veerabhadraiah, Former Director of Extension, UAS, Bengaluru
Rapporteur	: Dr. Vinay Kumar, Assistant Professor, College of Agriculture, Hassan.
Coordinator	: Dr. K. P. Raghu Prasad, Professor of Agril. Extn. UASB.
Lead Speaker	: Dr. A.K. Singh, DDG (Agri. Extn.), ICAR, New Delhi Innovative Digital Applications for Sustainable Agricultural Development
Lead Speaker	: Shri. Rikin Gandhi, Chief Executive Officer, Green Media, Bengaluru. Technology to Amplify Farmer Networks
Lead Speaker	: Dr. Srinivasa Reddy, Director, Karnataka State Natural Disaster Monitoring Centre. Application of ICT tools in Drought Monitoring and Mitigation
Lead Speaker	: Dr. Arul Aram, Assoc. Professor (Science Communication), Anna University, Chennai. Digital Applications in Mass Media



Recommendations

- Preparation and implementation of adaptation and mitigation plan is the need of the hour to withstand the effect of climate change and related natural disasters on a regional scale.

- Extensive information sharing is very important than merely having the information. Hence, a policy should be evolved for open access to information for sustainable development.
- Since a majority of the farming community are having mobile phones and to enhance adoption of recommended practices among farmers, it is recommended to develop a policy framework for providing memory cards consisting of complete package of practices on location specific crops.
- Unlock the production potential of the smallholder farming communities themselves through provisioning combination of existing extension agency and farmers together with video technologies and establishing networks for efficient sharing of critical farm information.
- Ensure incorporation of digitalization to fasten the process of changeover to the digital platform by the educational institutions. Digitization can never be exclusive for the experts, technocrats, techies, rather it should be made common for all.
- Focus on the three prime factors viz. Computing, Communication and Content in digital application of mass media for enhancing their effectiveness.

2.00 PM to 7.00 PM	:	Technical Session B : Presentation by Delegates
Theme	:	3. ICTs: Application, role and innovations in agricultural extension & rural development
Venue	:	Auditorium, North Block, Agricultural College
Chair	:	Dr. A.K. Singh, DDG, Extn. ICAR, New Delhi.
Co-Chair	:	Dr. M.J. Chandre Gowda Principal Scientist, ZPD-VIII, Bengaluru
Rapporteur	:	Dr. M.T. Lakshminarayan, Asst. Prof. of Agril. Extension, UAS, Bengaluru
Coordinator	:	Dr. Raghupathy, Professor of Agril. Extn., College of Agriculture, Mandya.

Recommendations

- Enhance the utilisation of expert systems, decision support system and knowledge banks which have the potential to help the farmers and the extension personnel in addressing the technological constraints through capacity building and infrastructure creation.
- Improved literacy levels and mobile penetration to rural areas throw up a great opportunity for a mobile based extension services by all the stakeholders. Encash this opportunity towards attracting and retaining youth in rural areas.
- Create video conferencing facility should be created in all the panchayats for interactive use by the district administration on a regular basis to foster broad based linkage of all the development departments and citizens in the rural areas.



2.00 PM to 7.00 PM	:	Technical Session C : Presentation by Delegates
Theme	:	7. Digital Communication strategies for Rural Development & Natural Resource Management 8. Content generation for ICT based applications 9. Digital Applications in Mass Media
Venue	:	PG Conference Hall, North Block, Agricultural College
Chair	:	Dr. D. M. Chandargi, HOD, Agril. Extension, B.R. Gudi
Co-Chair	:	Dr. S.K. Meti, Director of Extension, UAS, Raichur
Rapporteurs	:	Dr. Subash, Scientist, NDRI Regional Station, Adugodi, Bengaluru
Coordinator	:	Dr. B. Krishnamurthy, Professor of Agril. Extension, UAS, Bengaluru

Recommendations

- Build the capacity of stake holders in the use of ICT tools and techniques such as GIS, Video Conferencing and Digital Mapping for managing and conservation of forests.
- Develop a comprehensive ICT based strategies indicating guiding principles for effective decision making, adaptation process and climate specific application in crisis management.
- Promote criss-cross sharing of critical farm information by forming groups in social media/networking applications by involving farmers, extension workers and scientists to share problems and solutions in agriculture sector.
- Develop ICT infrastructure and trained human resource at gross root level at the same time for developing and application of ICT tools for effective Transfer of Technologies.
- Develop appropriate content designs by involving various stakeholders for customising information, easy understanding and acceptance of technology during the designing process of ICT applications
- Produce and upload video documentaries on various technologies with the principles of short duration, high definition in quality, infotainment mode and multilingual features on various mass media channels
- Develop exclusive decision support systems on agriculture and allied enterprises for use by the farmers and extension agencies.
- Use the social media as an effective supporting tool in dissemination of farm information
- Harness the mobiles usage for quicker sharing of technological information and services.



2.00 PM to 6.00 PM	:	Technical Session D : Presentation by Delegates
Themes	:	4. Recent advances in Information Technology and its Application in Agricultural Knowledge and Information System
Venue	:	Dr. R. Dwarakinath Hall, Dept. of Agricultural Extension, North Block
Chair	:	Dr. Dipak De, President, GCRA&HoD (Agricultural Extension), IAS, BHU, Varanasi
Co-Chair	:	Dr. N.S.Shivalinge Gowda, Professor of Agril. Extension, UAS Bengaluru
Rapporteur	:	Mr. Shankara, SMS Agril. Extn., KVK, Tumakuru
Coordinator	:	Dr. BasavaprabhuJirli, Associate Professor (Agricultural Extension), IAS, BHU, Varanasi

Recommendations

- Continue disseminating information through Radio, Community Radio and Television which are still having relevance in better transfer of technology
- Utilise the interactive modes available in new media (WhatsApp, face book, telegram, mail etc.,) for dissemination of agricultural information
- Reduce the cost of internet access to make it affordable in rural areas and to promote and harness potential features offered through smart phones by farmers.
- Train the farmers in digital technologies to make them updated with the technological developments in farm information access



DAY 2 : Wednesday, January 6, 2016		
9.00 AM to 10.00 AM	:	Technical Session E: Presentation by Lead Speakers
Venue	:	Auditorium, North Block, Agricultural College.
Chair	:	Dr. M.S. Nataraju, Administrative Officer, UAS, Bengaluru
Rapporteur	:	Dr. M.V. Srinvasa Reddy, Asst. Prof. of (Agril. Extn. College of Agri. Chintamani
Coordinator	:	Dr. V. Govinda Gowda, Asst. Professor (Agril.Extn.), UASB
Lead Speaker	:	Dr. N. Nagaraja, Former Director of Extension, UAS, Bengaluru Traditional Media: Role, Relevance and Innovations
Lead Speaker	:	Prof.Naren Chitty, Founder President, GCRA, Sydney, Australia. Soft Power and Sustainable Development
Lead Speaker	:	VenkataramanBalaji, Director for Tech. & Knowledge Mgt., COL, Canada. Connected Learning and Agricultural Extension: Shall the Twain Meet?
Lead Speaker	:	Dr. M. J. Chandregowda, Principal Scientist, ZPD – VIII, MRS, Hebbal, Bengaluru Information Technology Acts and Policies: National and International Scenario
Lead Speaker	:	Dr. H. Ravishankar, Senior Scientist, CTRI, Rajahmundry. Agricultural Expert Systems: Current Status and Future Challenges

Recommendations

- Integrate the traditional folk media with modern electronic media as part of rural development programs to preserve and enrich our culture and tradition as also disseminating agricultural information and educating farming community.
- Develop expert systems to get quicker, accurate and authentic agricultural information in the changing scenario at local and at global level.
- Develop local / crop specific expert systems in regional languages with more useful futures for improving quality production and productivity.
- Develop and follow the dedicated ICT policy for agriculture with well-defined objectives and state specific strategies to harness the ICT potential for benefitting the farming community.
- Give top priority for “e- Empowerment” of farmers and extension personnel supported with necessary infrastructure, content and organizational support.
- Make adequate investment on innovations in Extension Research and Education Technologies to create new and sustainable models, channels and opportunities for communication among farmers and experts.
- Develop policies and programs that will attract students and staff to participate in their sustainable development programs in extension services



10.00 AM to 1.00 PM		: Technical Session F: Presentation by Delegates
Themes	:	3. ICTs: Application, Role and Innovations in Agricultural Extension & Rural Development
Venue	:	Auditorium, North Block, Agricultural College.
Chair	:	Dr. S. Prabhu Kumar, Former Zonal Project Director, ICAR.
Co-Chair	:	Dr. B. Balakrishna, Principal Scientist, IIHR, Bengaluru
Rapporteur	:	Dr. N. Manjula, SMS Agril. Extn. KVK, Chikkaballapur
Coordinator	:	Dr. Nityashree, Coordinator, AICRP on Home Science, UAS, Dharwad



Recommendations

- Ascertain the e-readiness of extension functionaries, their perception and usage about web based extension methods and systems.
- Enhance the utility agriportals through of customization of relevant and timely information up to the block and village level
- Promote the specific commodity /technology specific ICT modules which are already available for increased effectiveness and utility in extension services.
- Focus on illiterate, small and marginal farmers' affordability and usability while developing ICT modules through Interactive Voice Response Systems.
- Promote mobile learning modules to enhance diffusion of technologies to small and marginal farmers who do not have access to internet or smart phones.
- Update the ICT modules for disseminations with timely and accurate information related to climate resilient technologies, risk management, market price, etc.

- Digitize the preliminary benchmark data of villages collected through PRA and other techniques for their effective usage for planning, monitoring and evaluation of technology dissemination process.
- Promote group approach for enhancing the use of ICT by the farmers.

10.00 AM to 1.00 PM		: Technical Session G : Presentation by Delegates
Theme	:	2. Modern media in Agricultural Communication
Venue	:	PG Conference Hall, North Block, Agricultural College
Chair	:	Prof. Dipak De, HoD (Agricultural Extension), IAS, BHU, Varanasi
Co-Chair	:	Dr. M. Shivamurthy, Professor of Agril. Extension, UAS, Bengaluru
Rapporteurs	:	Dr. A.D. Ranganatha, Asst. Prof. College of Agri. Mandya
Coordinator	:	Dr. Y. N. Shivalingaiah, Professor of Agril. Extension, UAS, Bengaluru

Recommendations

- Have a separate channel on agriculture in every state so as to have wide coverage of the topics and repetition of the programmes so that the farmers can view the programmes at their convenience.
- Bridge the gap between scientists and farmers through fullest utilisation of television as a major channel in agricultural information dissemination processes.
- Promote the task of linking and networking of agricultural markets, commodity information system and computer aided auction displays through application of Information technology in agricultural marketing
- Provide greater access to information by the farmers to enable them to take better decision on transportation and logistics, price, location, supply and demand.
- Strengthen the systems for providing updated and timely market information of different commodities through mobile phones.
- Establish agricultural portals for rural areas to provide detailed and critical information
- Since SMS is most preferred by the farmers, make efforts to provide timely and accurate weather forecasting information for farmers through SMSs
- Engage farmers with the emerging tools like Twitter and Facebook for providing real time solutions and sharing agricultural information.



10.00 AM to 1.00 PM		: Technical Session H : Presentation by Delegates
Theme	:	1. Traditional media: Role, relevance and innovations
Venue	:	Dr. R. Dwarakinath Hall, Department of Agril. Extension
Chair	:	Dr. K. M. Jayaramaiah, Former Registrar, UAS, Bengaluru
Co-Chair	:	Dr. K. N. Ramanna, Professor and Head, Farmers Training Institute, UASB
Rapporteur	:	Dr. Pankaja, H.K., SMS (Agril.Extn.), KVK, Hassana
Coordinator	:	Dr. C. Karthikeyan Professor of Agril. Extension, TNAU, Coimbatore

Recommendations

- Integrate the traditional media with electronic media to the extent possible to create awareness and interest about agricultural technologies to the farmers, especially in the backward communities
- Conduct research and documentation of folk songs / arts, etc. with special reference to agriculture information dissemination across the country to preserve and perpetuate traditional media usage by various communities in India.
- Explore the possibilities to use the folk media in agricultural extension to keep the time tested media popular again among farming communities.



1.30 PM to 3.30 PM		: Technical Session I: Presentation by Lead Speakers
Venue	:	Auditorium, North Block, Agricultural College
Chair	:	Dr. G. Eswarappa, Former Director of Extension, UAS, Bengaluru
Rapporteur	:	Dr. N.T. Naresh, SMS (Agril. Extension) KVK, ChamarajaNagara
Coordinator	:	Dr. Maraddi, Assoc. Professor (Agril. Extn.), UASR
Lead Speaker	:	Dr. S. Prabhu Kumar, Former Zonal Project Director, Bangalore ICT for Digital Unite and Knowledge for All – KVK Perspective
Lead Speaker	:	Dr. D.K. Prabhuraj, Director, Karnataka State Remote Sensing Applications Centre, GKVK Campus, Bengaluru. Role of Spatial Information Technology in Agriculture
Lead Speaker	:	Dr. Ganeshraj, Deputy Director, RESPOND, ISRO HQ, Bangalore ISRO, Bengaluru. Remote Sensing Applications in Agriculture
Lead Speaker	:	Dr. ArunBalamatti, Programme Coordinator, KVK Suttur, Mysore Modern Media in Agricultural Communication
Lead Speaker	:	Shri. Virupaksha, Deputy General Manager, Canara Bank, Bengaluru ICT initiatives of Canara Bank for Sustainable Development

Recommendations

- Develop and use the One A + 6Cs in KVK system viz., Awareness and Advocacy, Connectivity, Capacity, Content, Creativity, Communication and Networking and finally the Cash i.e., immense resources.
- Establish Community Radio Station in each KVKs to focus on interactive and participatory programmes.
- provide data efficiently at all scales using the spatial information technologies related to agriculture viz., Global Positioning System, Remote Sensing and Global Positioning System.
- Link the Farmer Producers Organisations (FPOs) beneficiaries with the corporate for marketing linkage based on cropping pattern using Android based mobile applications.
- Replicate or link to the Canara Bank Direct Benefit Transfer model of reducing the middleman, leakage/ pilferages to ensure speedy delivery of social benefits to the various recipients of government support programmes in agriculture.
- Utilise and publicize the Canara Bank Agricultural Knowledge Dissemination Centre (AKDC)'s link to online portal for 'one stop shop platform for dissemination of information to all the stakeholders in the food supply chain starting from the farmer to plate approach.
- Estimate crop area and forecast productivity at district and regional level using remote sensing technological features like multispectral, large area and repetitive coverage.
- Apply appropriate ICT Tools in irrigation water regulation by monitoring and evaluation of water use efficiency in command area, ground water inventory, water status in tanks, canal alignment and surplus water bodies, forecasting of droughts and floods and rainfall pattern.
- Mass media facilitates farmers and extension workers to work together towards dissemination of information using individual and group contact methods. Hence, governments should bring in investments to the sector and utilize mass media for strengthening the extension system.



3.30 PM to 6.00 PM		: Technical Session J: Presentation by Delegates
Themes	:	3. ICTs: Application, role and innovations in agricultural extension and rural development
Venue	:	Auditorium, North Block, Agricultural College
Chair	:	Dr. M.J. Chandregowda, Principal Scientist, Zonal Project Directorate, Bengaluru.
Co-Chair	:	Dr. K.V. Naika, Professor of Agricultural Extension, UASB.
Rapporteur	:	Dr. K.N. Jagadish, SMS (Agril. Extn.), ICAR-IIHR-KVK, Hirehalli, Tumakuru
Coordinator	:	Dr. K.H. Nagaraja, Programme Coordinator, KVK, Ramanagara.

Recommendations

- KVKs need to scale up providing timely and appropriate SMSs to the farmers using mKisan portal
- Develop and standardise methodology for suitable Short Message Services on the parameters like frequency of message, timeliness and treatment of content
- Evolve programmes to provide unlimited free SMSs to meet all farmers' information need.
- Produce and Deliver Multimedia Message Services (MMS) to the farmers for learning on edutainment mode.

3.30 PM to 7.00 PM		: Technical Session K : Presentation by Delegates
Theme	:	2. Modern media in Agricultural Communication
Venue	:	PG Conference Hall, North Block, Agricultural College
Chair	:	Dr. Arul Aram, Professor of Environmental Science, Anna University.
Co-Chair	:	Dr. Hanumanthappa, Associate Director of Research, ZARS, Shivamogga
Rapporteur	:	Mr. Bharathkumar, T.P., Programme Coordinator, KVK, Mudigere
Coordinator	:	Mr. C. Narayanaswamy, Asst. Professor (Agril. Extn.), CoS, UASB.

Recommendations

- Extension personnel need to prepare agricultural information delivery programmes for TV, radio, mobile phones, landlines, desktops, tablets etc which can compete and comparable to entertainment programmes.
- Scale up use of social media like Facebook, twitter, LinkedIn, whatsapp, hike, Skype etc. from mere chatting to effective platform for transfer of agricultural technology.
- Establish common service centers at village level under a PPP mode to make available all the inputs and services to farmers at one single point.
- Show case the agricultural Technologies to the tribals through ICT tools to reduce the dependency on forests especially in the hilly terrains of North Eastern States of India.
- Establish societies like LAMPS in a bigger way to use modern media in to bring up tribals still more in a cooperative setup for better upliftment.
- Develop more content in agriculture suitable for delivery through new/modern media to reach the younger generations faster.
- Develop policies to translate the peoples' favourable attitude on modern ICT tools for the sustainable nation building.
- Empower the agriculture graduates through use and development of ICT tools to directly help them in acquiring good and effective extension skills and production of low cost ICT models / tools.
- Frame the policies to use the resources of youth power by involving them in agriculture extension and by equipping them with modernized media or ICT tools.

3.30 PM to 7.00 PM		: Technical Session L : Presentation by Delegates
Theme	:	1. Traditional media: Role, relevance and innovations
Venue	:	Dr. R. Dwarakinath Hall, Dept. of Agril. Extn. North Block
Chair	:	Dr. A.K. Singh, Professor and Head (Agril.Extn.), IAS, BHU
Co-Chair	:	Dr. K. Nagabhushanam, Associate Director of Extension, UAS, Bengaluru
Rapporteur	:	Dr. Vinay Kumar, Research Associate, IIHR.
Coordinator	:	Dr. Pennobaliswamy, Professor of Agril. Extn., UAS, Bengaluru

Recommendations

- Empower rural media artists to use modern media tools ineasily digitising traditional media and popularise the traditional creativity art of transmitting sensitive content in a desired direction.
- Preserve and perpetuate the wisdom of traditional media with perfect blending with modern ICT tools to address the needs of rural community.

DAY 3 : Thursday, January 7, 2016		
9.00 AM to 10.30 AM : Technical Session M: Presentation by Lead Speakers		
Venue	:	Auditorium, North Block, Agricultural College
Chair	:	Dr. J. Vasantha Kumar, Former Registrar, Annamalai University
Co-Chair	:	Dr. D. Nanjappa, Former HOD (Agril. Extn.), UAS, Bengaluru
Rapporteurs	:	Dr. Lakshmana Reddy, Asst.Professor, UHS, Bagalkote
Coordinator	:	Dr. N. Rajanna, Professor and Head, ATIC, UAS Bengaluru.
Lead Speaker	:	Dr. H. Philip, Director of Extension, TNAU, Coimbatore Content Generation for ICT Based Applications – Special Reference to ICT in Agricultural Projects
Lead Speaker	:	Dr. R. Saravanan, Associate Professor, CAU Pasighat, Arunachal Pradesh. Social Media for Agricultural Extension
Lead Speaker	:	Dr. Jiju P Alex, Associate Professor, C-STIP, KAU, Thrissur. Information Communication Technology: Application, Role and Innovations in Agricultural Extension and Rural Development
Lead Speaker	:	Sri. Mohan Kumar AM , Programme Executives, KrishiDharshan Digital Applications in Mass Media
Lead Speaker	:	Dr. MallikaMeti, ATIC, e-extension Centre of UAS (B) e-krishi UAS-B portal of UAS, Bangalore.

Recommendations

- Follow the content Scouting (Treatment)/ Content Management system for effective utilization for ICT based applications in agricultural projects.
- Reduce the expert – farmer gap through ICT initiatives that consist of locally relevant content, ease of access and reliable knowledge sourcing.
- Use social media for extensive collaborative action by all stakeholders of sustainable development of rural communities
- Mobilise the actors in Agricultural Innovation System (AIS) to use social media themselves first and then create awareness on its usage by the end users.
- Conduct local and national level researches on social media impact on rural development and its upscaling.
- Apply a multi-level approach and initiatives at institutional level and individual level together to make social media a reality in every sphere of agricultural extension and advisory services.
- Build the capacity of local governance units, line departments, civil society organisations and rural communities to make use ICT as a tool in their development approach.
- Develop farmer friendly technology transfer apps in agriculture and rural development for sustainable rural development.
- Network the E-portals of different State Agricultural Universities to provide holistic information on agriculture and allied enterprises into single delivery system in their respective states.
- Institutionalise the ICT applications and social media for efficient transfer of agricultural technologies.
- Build up media archives/ librariesof digitalized agricultural messages for translation, reuse and replication by different communities.



10.30 AM to 1.00 PM		: Technical Session N : Presentation by Delegates
Theme	:	3. ICTs: Application, role and innovations in agricultural extension and rural development
Venue	:	Auditorium, North Block, Agricultural College
Chair	:	Dr. M. Shivamurthy, Professor of Agril. Extension, UAS, Bengaluru
Co-Chair	:	Dr. V.L. Madhuprasad, Professor of Agril. Extension, UAS, Bengaluru
Rapporteur	:	Mr. C. Narayana Swamy, Asst. Professor of Agril. Extension, CoS, UAS, Bengaluru
Coordinator	:	Dr. Chandregowda, Associate Professor of Agril. Extn., FTI, UASB.

Recommendations

- Increase the use of e-SAP facility field level extension workers for diagnosing the intensity of pest and diseases and providing on spot the solutions.
- Encourage the use of interactive educational multimedia modules, multiple cyper approaches and websites to disseminate the farm technologies.
- Encourage development, multiplication and use of multimedia DVDs on agriculture and allied technologies to enhance the knowledge level of grassroots level extension personnel and farmers.
- Provide computer literacy to enhance the ICT utilization among farmers and rural communities to avail all the benefits of e-governance.



10.30 AM to 1.00 PM		: Technical Session O : Presentation by Delegates
Theme	:	5. Expert systems, Decision Support Systems(DSS), Software development and Programming for agricultural extension and communication 6. IT Acts and policy framework: Concerns, issues and challenges
Venue	:	PG Conference Hall, North Block, Agricultural College
Chair	:	Dr.Jiju P. Alex, Associate Professor of Agril. Extn. KAU.
Co-Chair	:	Dr. C. Karthikeyan, Professor of Agricultural Extension, TNAU
Rapporteur	:	Dr. C.M. Savitha, SMSAgril. Extn, KVK, Mandya
Coordinator	:	Dr.GolyaNaik, Professor of Agricultural extension, CoA,Chintamani

Recommendations

1. Digitise the legacy data bases in development agencies and make available for incorporation into various e-governance and e-extension applications.
2. Link the Expert systems on various fields of agriculture with real time field observations
3. Give more emphasis to generate geo-referential data for recommendations on crop management, plant protection management etc.



1.30 PM to 2.30 PM		Technical Session : P - PLENARY SESSION
Venue	:	Chamber of Head of the Department (Agril. Extn.) Agricultural College, GKVK.
Chair	:	Dr. J. Vasantha Kumar, Former Registrar, Annamalai University
Co-Chair	:	Dr. Dipak De, Professor and Head, Department of Agril. Extn., IAS, BHU, Varanasi.
Co-ordinator	:	Dr. S.V. Suresha, Coordinator, BVAC, UAS, Bengaluru
Rapporteurs	:	Dr. Ganesamoorthi, S. Asst. Prof. Agricultural Extension, UASB Dr. V. Govinda Gowda, Asst. Prof. Agricultural Extension, UASB Dr. BasavaprabhuJirli, Asso. Prof. of Agricultural Extension, IAS, BHU, Varanasi

In the plenary session, the above committee reviewed issues and recommendations made by the chairmen of technical sessions. After the detailed deliberations, the committee emerged with four major issues and 14 significant recommendations. These issues and recommendations were presented in the valedictory programme of the 8th GCRA Conference.

VALEDICTORY PROGRAMME

2.30 PM to 4.00 PM		
Venue	:	North Block Auditorium, Agricultural College, GKVK.
Recommendations	:	Presentation of Salient Recommendations of the Conference
Valedictory Address	:	Dr. M.B. Chetti, ADG(Education), ICAR, New Delhi
Chief Guest	:	Dr. P.G. Chengappa, Former Vice-Chancellor, UAS, Bengaluru
Guests of Honour	:	Dr. D. P. Kumar, Director of Education, UASB
	:	Dr. K.M. Jayaramaiah, Former Registrar, UASB
	:	Dr. V. Veerabhadrarajah, Former Director of Extension, UASB
	:	Dr. G. Eswarappa, Former Director of Extension, UASB
Presentation of Awards	:	Presentation of Best Paper Presentation Awards
Presidential Address	:	Dr. H. Shivanna, Vice-Chancellor, UAS(B)
Rapporteur	:	Dr. V. Govinda Gowda, Assistant Professor, UASB



Dr. P.G. Chengappa, Former Vice-Chancellor, UAS, Bengaluru in his address insisted that ICT based marketing models similar to that of Amazon, Flipkart, etc. for agricultural commodities need to be developed. Further he advised to link the farmers demand for storing agricultural commodities with the warehouses availability on the lines of e-auction models and e-choupal.

Dr. M.B. Chetti, Assistant Director General (Education), Indian Council of Agricultural Research, New Delhi, in his valedictory address appealed to the delegates to develop virtual classrooms and virtual markets for quicker dissemination of knowledge and technologies at low cost. Further he stated that ICT innovations need to be CISS - Competitive, Inclusive, Scale neutral and Sustainable. He also expressed his concern that everything today depends on ICT there is a tendency among a section of teachers and students to misuse ICT without right spirit. He emphasized that ICTs should be used as a boon and not bane.

Dr. H. Shivanna, Vice-Chancellor, UAS, Bengaluru, in his presidential address stated that Model Village under each KVK needs to be established with all ICT facilities and innovations. He indicated that for the next two decades the role of social scientists will be phenomenal in agricultural development and asked the delegates to raise up adequately to respond to match the requirements with the extensive use of innovative ICT tools and ideas.

Dr. Govinda Gowda, Assistant Professor (Agril. Extn.), UAS, Bengaluru & Organising Committee Member presented the major issues and recommendations arrived as the outcome of the three days deliberations of the 8th GCRA Conference.

Dr. BasavaprabhuJirli, Associate Professor of Agricultural Extension, Banaras Hindu University, proposed vote of thanks for all for successful organising of the 8th GCRA International Conference.

MAJOR ISSUES

Research questions are one of the most important aspects of research. Research frame work must address the following questions.

- What is the important issue for taking up research?
- How should tools and techniques (standards) be drawn up and applied?
- Are these in the public interest or academic interest?
- How output of research is going to benefit and to whom?
- What are the future areas for taking up research?
- All these research questions will help the researchers to concretize their thinking process in a scientific manner.
- Are the old ICT tools (Radio, Community radio, TV and traditional media embedded with agricultural information) still having relevance for better disseminating information?
- Is interactive mode (whats app, face book, twitter, etc.,) of new media tools are to be taken into account for dissemination of agricultural information?

SIGNIFICANT RECOMMENDATIONS

1. Policies are to be framed to involve youth power in agricultural extension by equipping them with ICT tools.
2. The commodity/ technology specific ICT models need to be promoted for increasing effectiveness and utility.
3. Use of vernacular language in development of ICT is needed to enhance its utility.
4. ICT modules may be developed on climate resilient technologies, risk management, market price etc.
5. The preliminary bench mark data of villages collected through PRA and other techniques can be digitized for the effective usage for planning, monitoring and evaluation of technology dissemination process.
6. KVKs should have community radio station with digital technology which should focus on interactive and participatory programme.
7. Android based mobile application for FPO beneficiaries to link the corporate for marketing linkages.
8. There is a need for capacity building of stakeholders in the use of ICT tools.
9. While developing ICT application, it is very essential to develop appropriate content designs by involving various stakeholders for customising information easy understanding and acceptance of technology.
10. Electronic media should be integrated with traditional media for rural development programmes.
11. There is a need to make adequate investment on educational technologies to create digital environment.
12. Penetration of mobile in the rural areas is huge. The potential of mobile is to be properly harnessed by providing memory card.

13. The cost of internet is to be reduced or within the affordable means on the part of the farmers.
14. Training of farmers in relation to digital technology has to be organised to make them updated with the technology applicability.
15. Develop appropriate content designs involving various stakeholders for customizing information aimed at understanding and acceptance of technology.

BEST PRESENTATION AWARDS

In the valedictory programme, Dr. Ganesamoorthi, Assistant Professor (Agril. Extn.), UAS, Bengaluru & Organising Committee Member listed the sixteen delegates who had presented their papers in the 8th GCRA Conference which were recommended by the respective committees of the technical sessions for best paper presentation awards. Accordingly the delegates were presented **8th GCRA Best Paper Presentation Awards – 2016** by the dignitaries present in the Valedictory Programme. The details of awardees are as listed below.



Sl. No.	Ab. ID.	Title of the Abstract and Authors
1.	A021	CHANGING COMMUNICATION PREFERENCES OF PEPPER AND COFFEE FARMERS IN KODAGU DISTRICT OF KARNATAKA Saju George and Veerendra Kumar, K.V.
2.	A639	ICTS FOR MANAGEMENT OF CLIMATE INDUCED CRISIS MANAGEMENT- AN INNOVATIVE STRATEGY Vinaya Kumar, H. M., Shivamurthy, M., Ganghadarappa, N.R. and BiradarGangappagouda
3.	A616	EFFECTIVENESS OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) GADGETS IN GAINING KNOWLEDGE OF TOMATO CROP PRODUCTION PRACTICES AMONG FARMERS OF KARNATAKA ShivaniDechamma, GovindaGowda.V, Gangadharappa N.R., Shanabhoga M.B
4.	A530	Participatory rural data digitization for problem identification and prioritization S.S.Dolli and Uttam
5.	A226	FACEBOOK AS ICT TOOL: TIMELY DISSEMINATION OF DEMAND DRIVEN TECHNOLOGIES MahanteshPatil, Rohith, K A. and GireeshMaraddi
6.	A237	KEY VOICES HEARD DURING INDIA'S MONSOON: AN ANALYSIS OF INFORMATION ON TWITTER IN 2015 Jayashree, B. and Arul Aram, I.
7.	A024	TRADITIONAL MEDIA: ROLE, RELEVANCE AND INNOVATIONS K. L.Dangi
8.	A663	IMPACT OF KVK FREE SMS TO THE FARMERS OF UDUPI DISTRICT OF COASTAL KARNATAKA

		Dhananjaya, Bagli, HanumanthappaMolalu and RanjitTarikere
9.	A675	ATTITUDE OF FARMERS ABOUT USE Of ICT TOOLS IN FARM COMMUNICATION MallikaMeti, ShivaniDechamma, K.P.Raghuprasad and Devraj S.C
10.	A320	ICT USAGE OF CASHEW FARMERS: AN ENQUIRY OF PATTERNS AND DETERMINANTS Sajeev, M.V., GangadharaNayak and Pyarelal Saroj
11.	A678	Impact of Multimedia Production HoT Course on Cognitive, Affective and Psychomotor domains of Final Year B.Sc Agriculture Students Govinda Gowda V, Ganesamoorthi Sand Ranganath, A.D.
12.	A356	STIMULATING SOCIAL CHANGE THROUGH STREET THEATRE ANA RAJ J, Hemasankari K. and Jegadeesan, M.
13.	A353	EFFECTIVENESS OF MULTIMEDIA DVD ON APICULTURE IN TERMS OF GAIN IN KNOWLEDGE BY HORTICULTURE ASSISTANTS V.L. Madhu Prasad, K. Jagadeeshwara and S. V. Suresha
14.	A375	INFORMATION AND COMMUNICATION TECHNOLOGY IN AGRICULTURAL DEVELOPMENT: A COMPARATIVE ANALYSIS OF E-KRISHI AND KISSAN KERALA AswathyChandrakumar and B Krishna Murthy
15.	A336	ROLE OF BHOOMI PROJECT IN AGRICULTURE Suresh, D.K. and Yashashwini, M.A.
16.	A072	“FEED ASSIST”: EXPERT SYSTEM FOR COMPUTING LEAST COST BALANCED RATION Letha Devi and UlavappaAngadi

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