



# संवादपत्र NEWSLETTER

गोवा के लिए भा.कृ.अनु.प. का अनुसंधान परिसर  
(भारतीय कृषि अनुसंधान परिषद)

**ICAR RESEARCH COMPLEX FOR GOA**  
(Indian Council of Agricultural Research)



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April to September, 2013



हर कदम, हर डगर  
किसानों का हमसफर  
भारतीय कृषि अनुसंधान परिषद

*AgriSearch with a human touch*

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## Dr. A. K. Sikka joins as DDG (NRM), ICAR

**D**R. Alok K. Sikka has taken over as Deputy Director General (NRM), ICAR. He is also holding additional charge of his previous position of Technical Expert (Watershed Development), National Rainfed Area Authority (NRAA), Planning Commission, Government of India, New Delhi. Before joining NRAA, he was Director of ICAR Research Complex for Eastern Region, Patna and Basin Coordinator for Indo-Gangetic Basin under the CGIAR Challenge Programme on Water and Food. He did his Bachelors degree from Allahabad University in 1976 in Agricultural Engineering and M.Tech from Indian Institute of Technology (IIT), Kharagpur in 1978. He is Ph.D. in Civil and Environmental Engineering with specialisation in Hydrology and Water Resources Engineering from Utah State University, Logan, Utah, USA.



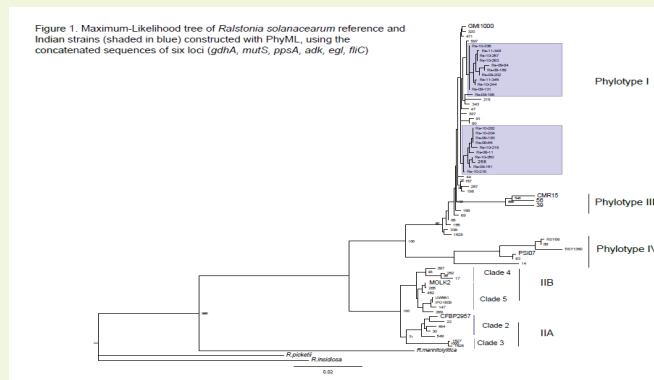
He started his career in the Indian Council of Agricultural Research (ICAR) IN 1978 at Central Soil & Water Conservation Research and Training Institute (CSWCRTI), Dehradun. He has a rich and diverse experience of over 34 years in research, institutional and policy issues, teaching, training extension and consultancy in the areas of soil & water conservation, watershed management, water harvesting, hydrologic modelling, drought studies, climate change, water management, water productivity and farming systems. Dr. Sikka worked in different capacities in India and abroad which include Head of the Centre; CSWCRTI Research Centre, Udhagamandalam; Scientist In-charge, Drought Division at National Institute of Hydrology, Roorkee; visiting Professor at University of Arizona, Tucson, Graduate Assistant at Utah State University; Utah and faculty at Oregon State University; Corvallis; Oregon; USA. He has been associated with many internationally supported projects including DFID, ACIAR, USAID, CGIAR, IFAD, World Bank, etc.

He has more than 250 publications in the form of research papers in the international and national Journals/Proceedings, book chapters, bulletins, reports and books to his credit. He is recipient of many national awards including Vasanttrao Naik Award-200 of ICAR for Research Application in Agriculture for outstanding Contribution in the field of Water Conservation and Dryland Farming, ICAR Award for Team Research for Biennium 2001-02, Dr. Rajendra Prasad Puraskar of ICAR for the year 2005-06, Hem Prabha – S. N. Gupta Medal (2000), Certificate of merit (1989-90) of Institution of Engineers (India). He is Fellow of National Academy of Agricultural Sciences, Indian Association of Soil & Water Conservationists and Soil Conservation Society of India. We are proud that he is the first agricultural engineer to become DDG (NRM).

## RESEARCH HIGHLIGHTS

### Analysis of genetic diversity of *Ralstonia solanacearum*

Twenty diverse strains were selected based on the *egl* sequence tree, geographical location and host for multi locus sequence typing (MLST) analysis. MLST data analysis based on a worldwide collection of plant pathogenic *R. solanacearum* database indicated that Indian strains look clearly original, and deserve further investigations. It was also observed that Indian strains are related to each other and that recombination occurred across these strains. Based on the data, two diverse *R. solanacearum* isolates were sequenced by NGS technology to understand the role of various virulence factors in infection and colonization.



### Isolation of enteric pathogens

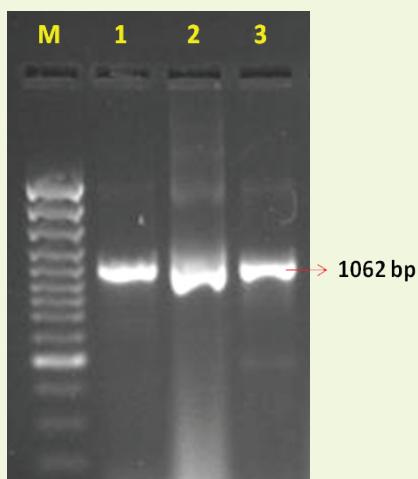
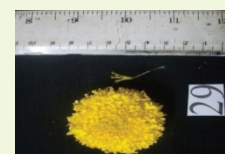


Fig. - RT-PCR for full length amplification of VP7 gene of rotavirus

A total of 136 fecal samples from piglet diarrhoeal cases, 20 diarrhoeal stool samples from children and 14 from calf were collected aseptically. A total of 36 *Escherichia coli* and 7 *Klebsiella spp.* were isolated from diarrhoeal fecal samples of piglets. All these *E. coli* and *Klebsiella spp.* were tested for antimicrobial sensitivity test by disc diffusion assay. Forty two piglet diarrhoeal fecal samples were tested by PAGE for detection of rotavirus. None of the sample found positive for rotavirus. Method for detection of rotavirus by RT-PCR was standardized using beg9end9 primer targeting amplification of VP7 gene.

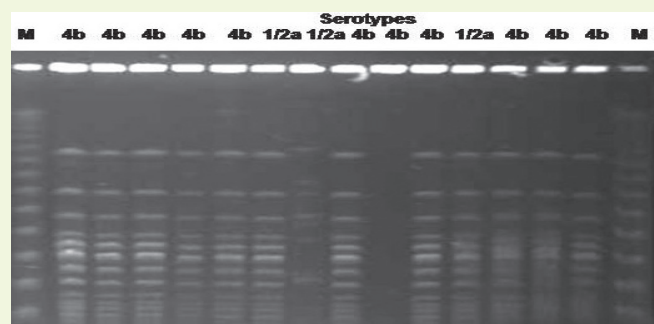
### Identification of promising local accessions of marigold

Collection and evaluation of local genotypes of marigold was undertaken. Promising local accessions of marigold were identified and collected from different talukas of Goa. Further evaluation of local accessions and known varieties of marigold was carried out in replicated trials under open field conditions. Significant variation was noticed among local accessions. Flower quality attributes like peduncle length, bud length, diameter of the flower, length of ray florets, width of ray florets, and disc floret length varied from 4.54 to 15.06 cm, 2.42 to 4.82 cm, 2.76 to 7.62 cm, 2.76 to 5.04 cm, 0.288 to 2.00 cm, and nil to 3.7 cm, respectively. Further studies are in progress.



### Characterization of *Listeria monocytogenes* using PFGE

A study on a collection of *Listeria monocytogenes* strains (65 Nos.) dating from 1995 to 2012 revealed the presence of strains with highly similar phenotypic and fermentation characteristics, virulence factors (*hly*, *plc* etc.) and identical Pulsed field gel electrophoresis profiles. The strains are a member of the serotype 4b and are widely present on the Indian subcontinent in terms of geographical location, source and dates of isolation. Indeed the strains appear to be highly clonal.



## Infestation of a new insect pest, Ambrosia beetles in cashew



Male *Euplatypus parallelus* Female

Infestation of a new insect pest called ambrosia beetles, *Euplatypus parallelus* (Fabricius) (Coleoptera:

*Platypodidae*) has been recorded on cashew plants. Most of the infested trees were either previously attacked by cashew stem and root borer, *Plocaederus ferrugineus* (*Cerambycidae*: Coleoptera) or pruned trees. The visible symptoms of attack include appearance of numerous round bore holes on the tree trunk, branches and extrusion of fibrous dust material on the tree trunk and in loose piles at the base of the tree. Large number of larvae, pupae and adults were observed in the galleries of the affected trees. Adult beetles measure 4.0 - 4.3 mm in length and are brown in colour having long and slender bodies with yellow hairs. They have a characteristic features of absence of pores on pronotum. Male and female insects were identified based on the elytral declivity. It is a secondary pest and it may act as a vector for disease transmission to cashew.

## MAJOR EVENTS

### Honourable Governor of Goa inaugurated the Foundation day celebrations

Hon'ble Governor of Goa, Shri. Bharat Vir Wanchoo, visited the Institute on 1st April, 2013 on the occasion of Foundation day of the Institute. Honourable Governor inaugurated the foundation day celebrations of the Institute. Shri D. P. Dwivedi, Secretary, Department of Agriculture, Government of Goa and Shri. S. S. P. Tendulkar, Director, Directorate of Agriculture, Government of Goa also graced the occasion. Dr. Narendra Pratap Singh, Director of the institute welcomed the Chief Guest and other dignitaries. In his welcome address, he briefed about the institute and the research activities. He highlighted the importance of horticulture crops, rice, cowpea and sugarcane crops and eco-tourism in the State. He described the problems faced by the farmers of the region especially pest and diseases in high value crops. He emphasized the demand of the farmers for new, innovative and eco-friendly technologies including biotechnology to solve these issues. Shri S. S. P. Tendulkar and Shri D. P. Dwivedi addressed the staff of the Institute and congratulated them for good research work and for development of different technologies for the benefit of the farmers. On the occasion of Foundation Day of the Institute, staff members were awarded for their excellent contribution to the Institute. Shri. Bharat Vir Wanchoo, during his address to the staff, congratulated the awardees. He also emphasized that the Institute should take up the research work on effect of climate change on agricultural commodities and the farmers of Goa should be educated adequately to overcome existing and future problems in agriculture in order to get maximum



production with high productivity. The vote of thanks was proposed by Dr. Gopal Mahajan, Scientist (Soil Science).

Earlier, Hon'ble Governor visited the Agriculture Technology Dissemination Centre (ATDC), various research units of crop sciences, horticulture and animal science sections. He also visited the Krishi Vigyan Kendra attached to the Institute and post harvest technology unit. During his visit he interacted with scientists to get appraised with the ongoing research programmes. He appreciated the scientists of the Institute for conducting need based research and giving valuable inputs to the farmers of Goa. While interacting with the concerned scientists, he encouraged introducing the latest technology to increase the production and productivity. He expressed his happiness that the farmers of the state are being benefited through the ICAR technologies.



## Empowering Tribes of Goa with post harvest machinery for value addition in minor fruits



Awareness training cum demonstration on 'Value addition in Jack and kokum fruits' was conducted at the Institute on 3rd April 2013. It was attended by 25 participants from Shirdonga, Quitula, Podural, Valpoi, Pilar and Dongrim. Mrs. Sunetra Talaulikar, SMS (Home Science) and Mrs. Nirmala Singh demonstrated various value added products to the participants. Different machineries like hand operated jack fruit cutter, hand operated chips cutter, kokum cutting machine, electric dryer and sealing machine were demonstrated during the training. Various value added products like jack fruit pickle, jack fruit chips, jack fruit bhajjas, jack-pineapple RTS, jack fruit leather and kokum sharbat method were demonstrated during the day.

Another programme on 'Training cum demonstration on Value addition in Jack fruit' was conducted at the

Institute on 15th and 16th April 2013. It was attended by more than 100 participants from Cotigaon and Gaondongrim (Canacona Taluka), Morpirla (Quepem), Dhave (Volpoi) and Aldona (Bardez). Mrs. Sunetra Talaulikar, SMS (Home Science), Mrs. Padmini Sivadas, and Mr Sivadas from Kerala demonstrated various value added products like jack fruit pulp, halwa, gulab jamun, unniappam and sweet vada, dessert, kheer, jam, squash, wine, pakoda, cutlet, plain and masala papad, pickle, seed pakodas and seed kheer from jack fruit of different stages of maturity. This was followed by a huge response through applications for the machinery. On scrutinizing their applications and subsequent visits to their villages, six groups were short listed for the same. Then, a Refresher Training and Distribution of Processing Machinery for Value Addition in Jack and Kokum fruits was conducted at the institute on 14th June 2013. Mrs Sunetra Talaulikar, SMS (Home Science), KVK, North Goa, gave a lecture on the Value addition and shared her experience about the Jack Festival that was held at Sirsi in May 2013. Dr Mathala. J. Gupta, Scientist (AS & EM) gave a brief lecture on usage and maintenance of Processing machinery. Later on, processing machinery and materials were distributed by dignitaries to the six Self Help Groups. Afterwards, a training cum demonstration was conducted at Netravali for one of the beneficiaries group by Sunetra Talaulikar, SMS (Home Science) and S.Priya Devi, Scientist (Horticulture).

## 29th Annual workshop of National Network Research Project on Arid Legumes

The 29th Annual workshop of National Network Research Project on Arid Legumes was held from 24 – 26th May 2013 at ICAR Research Complex for Goa. Shri. Hage Khoda, Secretary (Agriculture), Govt. of Goa inaugurated the Annual Workshop. Dr. B. B. Singh, Assistant Director General (Oilseeds & Pulses); Prof. B. B. Singh, Visiting Professor, GB Pantnagar University of Agricultural Sciences; Shri. U. B. Kakode, Director, Directorate of Agriculture, Govt. of Goa; Dr. Narendra Pratap Singh, Director, ICAR Research Complex for Goa and Dr. A. Henry, Nodal Scientist, NNRP on Arid legumes were present on the occasion.

More than fifty scientists working on different arid legumes in ICAR and Agricultural Universities actively participated in the meeting. During the three day deliberations, the research work of the previous year was reviewed and new programmes were chalked out for the



next year. Research highlights in each of the centres were presented by the respective Principal Investigators. Dr. Manohara K K., Scientist in Plant Breeding coordinated the three day workshop.



## Training Programme on “HARMONY, BALANCE & SYNERGY”



A training programme on “HARMONY, BALANCE & SYNERGY”, ‘Enhancing the performance of the Administrative and Technical Staff of ICAR Research Complex for Goa’ was held from August 14 to 21, 2013

by the Program Directors Dr. M. M. Anwer, Shri. R. V. S. Rao and Shri. K. H. Rao from NAARM, Hyderabad. The objective was to equip the Administrative and Technical staff of this Institute with sound theoretical knowledge and hands-on-experience and practicing skills in various areas like overview of people at work, personality profiling, trust building, emotional management, inter personal interaction, role perception, positive reinforcement, task accomplishment, team building, promoting team work, work design, time management, teams interfaces in organisations, motivation management, transactional analysis, job completion, stress management, leadership, the way forward etc. There was also training on Financial Management, Purchase Procedures and Auditing Procedures. The administrative and technical staff of the institute took part in the training.

## Awareness programme on “Clean milk production”

An awareness programme on “Clean milk production” was organized under Tribal Sub Plan programme on 2nd September, 2013 at Adane village, Quepem Taluka. Shri. Rajan Naik, Hon. MLA, Cuncolim graced the function as a “Chief Guest”. Over 40 tribal farmers from Adane and nearby area participated in the programme. The farmers were informed about clean milk production, foodborne infections, infertility in dairy animals. Kit for detection of mastitis was demonstrated and supplied along with different medicines to the farmers free of cost. One set of milking machine along with all accessories was provided to a group of farmers from Adane village.



## DDG (NRM) visited the Institute



Hon’ble DDG (NRM), Dr. Alok Kumar Sikka visited the Institute on 19th September, 2013. He visited the Agriculture Technology Dissemination Centre (ATDC), various research units of crop sciences, horticulture and animal science sections. He also visited the Krishi Vigyan Kendra attached to the Institute and post harvest

technology unit. During his visit he interacted with scientists of different disciplines to get acquainted with the ongoing research programmes.

After the visit to various fields, a meeting with the staff of the Institute was organized at the Conference Hall. Dr. Narendra Pratap Singh, Director of the Institute welcomed the Hon’ble DDG (NRM). He briefed about the institute and the research activities. Dr. Alok Kumar Sikka interacted with the staff and tried to understand the problems faced by them. Two publications, “Vision -2030 of Krishi Vigyan Kendra” and an extension bulletin, “A guide to Identification and Management of Nutrient Deficiencies & Cultural Practices in Plantation Crops” were released at the hands of the Honourable DDG.

The Hon'ble DDG appreciated the work done by the Institute and assured his continuous support to the Director and staff of the Institute.



## Review of research programmes in Animal and Fisheries sciences

A meeting for reviewing the research programmes of Animal Science and Fishery Science sections of this Institute was held on 12th August, 2013. The meeting was chaired by Dr. Narendra Pratap Singh, Director of the Institute. The meeting was attended by Dr. A.K. Shrivastava, Director, NDRI, Karnal; Dr. S.M.K. Naqvi, Director, CSWRI, Avikanagar; Dr. N. V. Patil, Director, NRCC, Bikaner; Dr. K.K. Philipose, In-charge, KRC, CMFRI, Karwar; Dr. N.K.S. Gowda, Pr. Scientist, NIANP, Bangalore; Dr. B. Srinivas, Pr. Scientist, SRS, NDRI, Bangalore and the Scientists of ICAR Research Complex for Goa. Dr. N.P. Singh, Director welcomed all the experts. He highlighted the research and extension activities of the Institute. He also described the problems faced by the farmers of the region especially lower



productivity and diseases of the livestock. He emphasized the demand of the farmers for new, innovative and eco-friendly technologies including biotechnology to solve these issues. In the technical session, all the scientists from Animal and Fishery Science sections presented the progress report. The experts evaluated all the projects critically and gave valuable suggestions for the benefit of the farmers of Goa.

## World Zoonoses Day celebrated



ICAR Research Complex for Goa celebrated the World Zoonoses Day on 6th July, 2013. The theme of the celebrations was "Linking Environment, Animal Health and Human Health together". Dr. N.C. Sawant, Managing Director, Goa Sate Cooperative Milk Producers' Union Limited, Ponda, Goa graced the celebrations as Chief Guest for the inaugural function. Dr. S.K. Das, Principal Scientist welcomed the delegates and briefed about the World Zoonoses Day. Dr. Sawant spoke about the importance of zoonotic infections in our day to day life

and called for collaboration from Departments of Health, Animal Husbandry and Veterinary Services, Department of Agriculture, Science Colleges for creating awareness about the dreaded zoonotic infections. During the day resource persons, Dr Ashwani Kumar, Officer In-Charge, National Institute of Malaria Research, Goa Campus, Dr. Savio Rodriguez, Professor of Microbiology, Goa Medical College, Dr. U.V.T. Pednekar, Assistant Director, Department of Animal Husbandry and Veterinary Services, Govt. of Goa, Dr S.B. Barbuddhe, Principal Scientist and coordinator of the programme and Dr Z.B. Dubal, Scientist from ICAR Research Complex for Goa deliberated on different aspects of zoonotic infections. Over 100 delegates from all over Goa participated in the programme. The programme was organized as a part of awareness campaign about zoonotic and foodborne infections funded by Department of Biotechnology, Government of India.

## Short term Course on "Integrated farming systems for small and marginal farmers"

A ten days National level training program on "Integrated farming systems for small and marginal farmers" was organized at ICAR Research Complex for Goa.

The Training Programme was inaugurated on 4th June, 2013 by Dr. Narendra Pratap Singh, Director. In his address, he indicated the importance and genesis of Integrated Farming System Research and emphasized the need for System approach in the context of fragmented land holdings both in Goa and other parts of the country.

Dr. S. Subramanian, former Principal Scientist briefly outlined the focal concept and components of Integrated Farming Systems in augmenting rural income with optimal utilization of available resources and its suitability to



small holdings, homesteads and resource poor farmers. Dr. B.L. Manjunath, Principal Scientist (Agronomy) co-ordinated the programme.

## International Symposium on Problems of Listeriosis

The eighteenth International Symposium on Problems of Listeriosis (ISOPOL XVIII) was organized by the Institute. The symposium was inaugurated by Shri. Bharat Vir Wanchoo, Hon'ble Governor, Goa in presence of Dr. Alok Kumar Sikka, DDG (NRM), ICAR, New Delhi, Dr. N.P. Singh, Director, ICAR Complex for Goa, Dr. A.M. Paturkar, President, Indian Association of Veterinary Public Health Specialists and Dr. S.B. Barbuddhe, Convener of ISOPOL, 2013.

Over 250 delegates from 28 different countries including 110 foreign delegates and 140 Indian scientists participated in the ISOPOL to discuss the issues of foodborne pathogens of animal origin which has become a cause of concern for the global health.

Hon'ble Governor emphasised the hygienic milk and meat production which can reduce such emerging health hazards from the society. He urged the scientific community to discuss the issues related to poverty alleviation and tackle the problems with humane sympathy beyond regional discrimination. Since poverty is the basic cause of various predisposing conditions of ill health, therefore, alleviation of poverty with sustainable development and food security solutions could be possible through extensive research in the field of agriculture, animal husbandry, horticulture and fisheries. He also stressed on balancing of the ecology and control of environmental pollution since every living creature is dependent on clean and safe air, water and environment.

Experts from WHO collaborating centres of listeriosis from France, Germany and USA shared their experiences on listeriosis. Eminent professors from universities in Europe and America, Asian countries, experts from regulatory authorities from India and abroad along with the experts from food industries contributed to combat the dreadful emerging disease – "Listeriosis"



Dr. Alok Kumar Sikka, Deputy Director General, NRM, ICAR who chaired the inaugural session briefed the gathering about the role of ICAR which is the largest organisation in the world working for agricultural development. ICAR is determined to develop sustainable management strategies for natural resources for achieving food, nutritional, environmental, and livelihood security in the country. He urged the scientific community to come with the concrete recommendations in the interest of public health especially on food safety.

Dr. Narendra Pratap Singh, Director, ICAR Research Complex for Goa assured to play a major role in promoting excellence in higher education in agriculture. He also narrated the role played by the Institute in promoting research on *Listeria*.

Dr. S. B. Barbuddhe, Convener of the ISOPOL 2013 presented the outline of the ISOPOL which included 18 sessions on the different aspects of Listeriology. There was a special session on food safety in South-East Asia and round table discussion on interface of researchers, food industry, and clinicians to find the solutions to the listeriosis problem. Dr. A. M. Paturkar offered vote of thanks.

## हिन्दी पखवाड़ा समारोह



संस्थानद्वारा हिन्दी पखवाड़ा दिनांक 2-16 सितंबर 2013 तक मनाया गया। दिनांक 2 सितंबर को हिन्दी पखवाड़ा कार्यक्रम का

उद्घाटन माननीय निदेशक महोदयजी के करकमलों से हुआ। इस अवसर पर उन्होंने हिन्दी के गौरवपूर्ण इतिहास का वर्णन किया और साथ ही संस्थान के सभी कर्मचारियों को हिन्दी में काम करने के लिए प्रेरित किया।

इसी क्रम में संस्थान में मनाए गए हिन्दी पखवाड़े के दौरान कर्मचारियों के लिए अनेक प्रकार की प्रतियोगिताएं जैसे की निबंध लेखन, सुलेख, वाद विवाद, व्याख्यान सामान्य ज्ञान आदि प्रतियोगिताओं का आयोजन किया गया, जिसमें संस्थान के अधिकांश कर्मचारियों ने उत्साह के साथ भाग लिया। इस अवसर पर संस्थान के कर्मचारियों के बच्चों के लिए भी अनेक प्रतियोगिताओं जैसे कि सस्वर कविता पाठ, चित्रकला, निबंध, प्रतिभा प्रदर्शन आदि का आयोजन किया गया।



दिनांक 07 सितंबर को संस्थान के कर्मचारियों के लिए हिन्दी कार्यशाला का आयोजन भी किया गया था। इस अवसर पर कर्मचारियों के लिए कार्यालय में सरल हिन्दी में कार्य, पत्राचार, नोट तथा टिप्पण लेखन, कम्प्यूटर पर हिन्दी में कार्य तथा भारत सरकार की राजभाषा नीति आदि प्रशिक्षण आयोजित किए गए थे। इस अवसर पर गोवा शिपयार्ड के श्री. प्रभुदेसाई, राजभाषा शिक्षण संस्थान के श्री. देवकी नन्दन पाठक, आयकर विभाग के श्री. अरुण शर्मा तथा राष्ट्रीय समुद्र विज्ञान संस्थान के श्री. राकेश शर्माजी ने वक्तव्य एवं प्रशिक्षण दिये। इन सभी वक्ताओं ने हमारे परिसर में राजभाषा पर किए जा रहे कार्य की सराहना की।

दिनांक 16 सितंबर 2013 को हिन्दी पखवाड़ा का समापन समारोह तथा पखवाड़े के दौरान आयोजित विभिन्न प्रतियोगिताओं के विजेता प्रतिभागियों को पुरस्कार से सम्मानित किया गया। इस अवसर पर मुख्य अतिथि के रूप में श्री. कार्तिक कश्यप, पुलिस अधिक्षक - एंटी नरकोटिक्स सेल, गोवा सरकार तथा श्रीमति प्रियंका कश्यप, पुलिस अधिक्षक - उत्तर गोवा, गोवा सरकार ने कार्यक्रम की शोभा बढ़ाई। इस अवसर पर मुख्य अतिथियों ने हमारे अनुसंधान परिसर में किए जा रहे अनुसंधान कार्य तथा राजभाषा पर किए जा रहे कार्य की मुक्तकंठ से प्रशंसा की।

## IPR CELL ACTIVITIES

- An application for the registration of “Agonda Goan Pig” has been submitted to National Bureau of Animal Genetic Resources, Karnal, Haryana.
- Six Kokum, *Garcinia indica* collections Kharekazan 1 (IC-0597955 FRUITS), Savoi kamini 3 (IC-

0597956 FRUITS), Thane 3 (IC-0597957 FRUITS), Hedode 1 (IC-0597958 FRUITS), Parashte 3 (IC-0597959 FRUITS), and Pednem Keri 1 (IC-0597960 FRUITS) were assigned accession numbers by NBPGR, New Delhi.

## PARTICIPATION IN SEMINAR / SYMPOSIA / TRAINING

### Dr. N.P. Singh

- STRASA Annual Review and Planning Workshop at NASC Complex, New Delhi, 9-10 April, 2013.
- Visit to BHU, Varanasi to conduct oral comprehensive examination of Ph.D. student. May 4-8, 2013
- 105th Annual General Meeting of Goa Chambers of Commerce, Panaji, 29 June 2013.
- International conference on tropical routes and Tubers for sustainable livelihood under changing agro-climate, CTCRI, Trivendrum, 10-12 July, 2013.
- Meeting on Performance Indicators, ICAR, New Delhi, 15 July, 2013.
- ICAR Foundation day, NASC Complex, New Delhi. July 16, 2013.
- Agriculture Policy Committee meeting, Krishi Bhavan, Tonca, July 30, 2013.
- Agriculture policy meeting, Krishi Bhavan, Tonca, Caranzalem, Goa, 30 July, 2013.
- VIII Annual Review Meeting of ICAR Seed Project-Seed Production in Agricultural Crop at NBPGR New Delhi, August 26-27, 2013.

### Dr. A.R. Desai

- MDP on "Intellectual Property Rights and Biotechnology", NAARM, Hyderabad during 8-12 July, 2013.

### Dr. R. Ramesh

- Annual review meeting of PhytoFuRa project conducted at Central Potato Research Institute (CPRI), Shimla during 9-11 April, 2013

- Workshop on “Action plan for the management of bacterial blight” organized by NRC on Pomegranate in Solapur on 29th May 2013
- State level seminar on “Glimpses of Microbiology in Integrative Biosciences” conducted at St. Xavier’s College of Arts, Science & Commerce, Goa on 25th September 2013
- Awareness workshop on “National Fund for Basic, Strategic and Frontier Areas of Research in Agriculture (NFBSFARA)” held at CIFE, Mumbai during 27-28th September 2013

### Dr. P.K. Naik

- National Conference on current nutritional concepts for productivity enhancement in livestock and poultry held at Madras Veterinary College, Chennai, August 29-30, 2013

### Dr. Manohara K.K.

- 48th Annual Rice Workers Group Meeting held at Sher E Kashmir University of Agricultural Sciences, Srinagar, Kashmir, India, 13 – 16th April, 2013.
- Annual Review and Planning Workshop Phase 2 year 3 of BMGF funded project ‘Stress Tolerant Rice for Africa and South Asia’ held at NASC Complex, New Delhi during April 9-11, 2013.

### Dr. Safeena S.A.

- International Conference on Tropical roots and tubers for sustainable livelihood under changing agro climate organised by Indian Society for Root



Crops and Central Tuber Crops Research Institute held at Hotel Mascot, Thiruvananthapuram, Kerala, India during 9th -12th July 2013.

#### **Dr. Gopal R. Mahajan**

- International Conference on “Water quality and management for climate resilient agriculture” during May 27-31, 2013, held at Jain Hills, Jalgaon (M.S.).

#### **Manju Lekshmi.N.**

- The first Student’s research convention on Innovations in fisheries, organized by CIFE, Mumbai and PGSSU on 10th July, 2013 during the attachment training in CIFE
- Training programme on Aquarium management techniques from 02-07-2013 to 11-07-2013 in Central Institute of Fisheries Education , Mumbai
- Trainers training programme for fisheries officials on “Moving Towards Sustainability” organized by Fishery Survey of India, 24-26 September 2013, Conference Hall, Fishery Survey of India, Mormuagao, Goa.
- Workshop organized by Fishery Survey of India at Malim fisheries marketing society Conference hall, Malim Jetty, Panaji on 27 September, 2013.

#### **Sreekanth G. B.**

- International Symposium on “Greening Fisheries-Towards green technologies in fisheries organized by SOFTI (Society of Fisheries Technologists (INDIA) and CIFT at Ashoka Hall, Kochi, Kerala during 21-23 May 2013.
- SAARC International Workshop on “Status of Good Practices and Lessons Learnt in Aquaculture in the SAARC region” from 5th – 7th June, 2013 in collaboration with Central Marine Fisheries Research Institute, Kochi.
- Participated in the trainers training programme for fisheries officials on “Moving Towards Sustainability” organized by Fishery Survey of India, 24-26 September 2013, Fishery Survey of India, Mormuagao.
- Workshop on “Marine Fisheries Resources of Goa coast: Sustainable utilization for conservation and management” organized by Fishery Survey of India on 27-09-13 at Malim fisheries marketing society, Malim Jetty.

#### **Raghurama Kukkude**

- Workshop on KOHA-an Integrated Library System at CPCRI, Kasaragod during 29-30 August, 2013.

## **PERSONALIA**

### **Foreign Deputation**

- Dr. Narendra Pratap Singh, Director participated as an Invited Speaker in the International Conference on “Global agriculture, food and land use. How to create resilient agricultural systems in a world of increasing resource scarcity and climate change, United Kingdom” held at Wilton Park in Sussex, U.K. during 15th -17th April, 2013.

### **Appointments**

- Shri. Omar Illroy Fransisco Da Silveira Ursula de Souza, T-3 w.e.f 8-8-2013

### **Promotions**

- Dr. R. Ramesh, Sr.Scientist (Plant Pathology) placed in the pay band PB-4 Rs.37400-67000 + RGP Rs.9000/- w.e.f 06-02-2012.
- Dr. S. Priya Devi, Sr.Scientist (Horticulture-Fruit Science) placed in Grade Pay Rs.8000/- w.e.f 19-11-2010.
- Dr. M. Karunakaran, Scientist (Animal Reproduction & Gynaecology) placed in Pay band Rs.15600-39100+RGP Rs.7000/- w.e.f 1-1-2009.
- Dr. Z.B. Dubal, Scientist (Veterinary Public Health) placed in Pay band Rs.15600-39100+RGP Rs.7000/- w.e.f 1-1-2009.
- Dr. Safeena S.A, Scientist (Horticulture-Floriculture) placed in Pay band Rs.15600-39100+RGP Rs.7000/- w.e.f 29-03-2013.
- Dr. Manohara K.K. Scientist (Plant Breeding) placed in Pay band Rs.15600-39100+RGP Rs.7000/- w.e.f 21-4-2013.

### **Superannuation**

- Smt. Sunita D Salgaonkar, Skilled Support Staff on 30-4-2013.

### **Transfers**

- Dr. Raj Narayan, Programme Co-ordinator transferred to CITH, Srinagar w.e.f 6-8-2013.
- Dr. M Karunakaran , Scientist (Animal Reproduction) transferred to NDRI, Karnal w.e.f 5-8-2013.

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## *From Director's Desk...*

Animal husbandry plays a vital role in rural transformation and in providing household nutritional security, increased income, and an employment opportunity, especially to women. The population and health of livestock and cattle in Goa is important for ensuring an adequate and wholesome quantity of meat, milk and milk products for the rising human population in the State. Over the period, the absolute number of cattle and buffaloes as well as the proportion of cattle and buffaloes in the total livestock has been declining steadily. During this period, the population of pigs as a proportion of livestock has remained stable. Given the increasing density of human population, this trend indicates a likely shortfall of meat, milk and milk products. Over the period 1998-2002, crossbred cows (in milk) constituted about 12 per cent of all milch animals (in milk) while desi cows and buffaloes, each constituted about 40 per cent of milch animals in milk. The number of crossbred cows in milk has declined marginally while the number of desi cows and buffaloes in milk has increased by about 15 per cent and 15.5 per cent, respectively. The population of cross bred cows below a year has registered a 72 per cent increase from 1997 to 2007. In the same period, the number of buffaloes below a year has increased about 10 per cent.



The productivity of crossbred cows is highest and is steadily increasing over the period 1998-2002. The productivity of buffaloes has stagnated and that of desi cows has declined from 1998-99 levels. Increases in milk production from the existing stock of cattle would require more attention to the health and nutrition of the desi cows and buffaloes. This in turn is a function of the quality of food given to the animal and the availability of prompt and high quality veterinary care for the animals. In the long term, the population of crossbred cows needs to be increased.

The farmers feed their milch animals a combination of green fodder, dry fodder and concentrates. The mixture of the feed is done by the farmer and is not standardised. Desi cows are apparently seen as religious symbols by the cattle owners. They are not viewed as a business proposition, unlike in the case of buffaloes and crossbred cows. Thus, not much is expected of them and not much is invested in their health/nutrition. Farmers in Goa experience difficulty in getting green and dry fodder of nutritive value. There is not enough green fodder cultivation at Goa. At the state-level, only about 7300 acres of land is used for fodder cultivation. The dry fodder available is largely straw, which is low in nutritive value. Much of the nutrition for the milch animals thus comes from the concentrate alone. Goa Dairy is the largest supplier of concentrate until date.

Milk production can be increased if the stock of crossbred cows and buffaloes is increased. External procurement of full-grown crossbred cows appears to be risky, with a good chance of diseased or defective crossbreds being put up for sale in neighbouring states. Therefore, it may be more appropriate to ensure more calving of crossbreds in the state. The keys to sustainable animal husbandry are increasing the population of crossbred cows and buffaloes and reducing dependence on desi cows, improving access to good quality green and dry fodder at reasonable rates, and spreading better dairy management practices especially among owners of small herds so that efficiency can be improved. Training and research efforts need to be synchronised with these concerns.

**N.P. Singh**

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