



# 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)



Vol. 13 No. 2

May to August, 2011



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

*Agrisearch with a human touch*

## In this issue

### Research Highlights

- \* Detection of *R. solanacearum* infecting solanaceous vegetables by PCR
- \* Status of Goan dairy farming

### Major Events

- \* Visit of Union Minister of Agriculture
- \* Visit of Parliamentary Standing Committee
- \* Meeting of subgroup on cashew
- \* Participation in Global mango conference
- \* National workshop on PFGE
- \* Awareness Programme on black paper

### New Initiative

- \* Registration of Cardozo Mankurad

### Participation in events

### Personalia

Published by :  
Dr. N. P. Singh, Director,  
ICAR Research Complex for Goa,  
Old Goa, Goa, India - 403 402,  
Phones (0832)-2285381,2284678,2284679  
Fax (0832)-2285649  
E-mail:director@icargoa.res.in  
website:http://icargoa.res.in

Editor:  
Dr. S. B. Barbudhe, Senior Scientist  
Compilation & Technical Assistance:  
Shri. S. K. Marathe

## From Director's Desk...

Cashew (*Anacardium occidentale* L.), a predominant export commodity originated from Latin American Zone was transported into India as a bio-agent to control soil erosion. The cultivation of this tropical crop is mainly confined to India, Brazil, Australia, Nigeria, Vietnam, Indonesia,



Guinea Bissau, Benin, Ivory Coast, Tanzania, Mozambique, Ghana, Sri Lanka, and Kenya. In the 16th century cashew was introduced in to India (Goa) by Portuguese and it spread all along the laterite hill slopes in the western areas from Mumbai to Cape Comerin and to the sandy soils on the east coast as well as over inland areas in the southern States.

Cashew kernel derived by the processing of rawnuts, is highly nutritious and is an ingredient of dietary item in most of the developed countries. Apart from cashew kernel's use in the food industry, Cashewnut Shell Liquid (CNSL) expelled during processing is a valuable industrial raw material which finds use in a number of chemical industries such as friction linings, paints, varnishes etc. Other valuable products from cashew industry are cashew testa, and tannin which have also limited industrial applications. Cashew apple is a rich natural source of vitamin C and fibre. Several nutritious by-products and beverages can be prepared from cashew apple. Goa is the only state having license to produce Feni from cashew apple.

In India cashew is grown in the states of Kerala, Karnataka, Goa and Maharashtra along the West Coast and Tamil Nadu, Andhra Pradesh and Orissa along the East Coast and in a limited extent in the states of West Bengal, Chattisgarh, Gujrat, Jharkhand and North Eastern States. The present area of cashew from the above cashew growing States is 9.23 lakh hectares and out of this the productive area is 8.82 lakh ha with a production of 6.13 lakh M.T. of raw nuts during 2009-10 season. The productivity is 695 kg per ha.

Cashew is a potential crop for Goa with a great scope to improve the production and productivity. Nearly 50,000 ha of potential area is available for new plantation development of cashew in Goa. The present area of cashew in Goa is 55,000 ha (6% of the total area under cashew in India) with a production of 26,000 MT (4% of total production). In Goa, the productivity

of cashew is low (473 Kg/ha). The main reasons for low production and productivity are: use of non-descript local trees, plantations established on degraded soils with poor fertility, competition of the plant with other forest species, lack of proper management practices, and casual attitude of farmers towards cashew cultivation. Besides, the very fact that forest regulation has become a hindrance. There is tremendous variability in available germplasm of cashew. Productivity from grafted area is observed to vary from 500 to 1800 kg /ha. The major cashew varieties under the cultivation include Venguria - 1, Venguria - 4, Venguria - 7, Vengurla - 8, and Balli - 2 (Goa-1).

Special impetus is required to provide in the action plan strategies to adopt clonal plantation development and technology dissemination, centering various practices needed for the development of cashew. By and large, major cashew plantations in Goa are by default organic plantations.

The art of feni making is the traditional wisdom of the local artisans well known to the people as early as 1870,

which is considered to have percolated down through the generations. The major constraints faced by the people involved in feni industry include lack of consistency in quality, non-standardized processes in case of both product quality and for processes such as juice extraction, fermentation, distillation and variation in these process. Goan Cashew Feni process is now recognized under GI.

The institute has envisaged to start a flagship programme to give impetus to research on cashew and cashew based farming systems. Under this programme comprehensive research on germplasm evaluation and characterization, pest management, evaluation of allied agro enterprises for integration with cashew based production system, identification of QTLs for economic traits, hybridization and utilization of cashew by-products for livestock production will be undertaken.

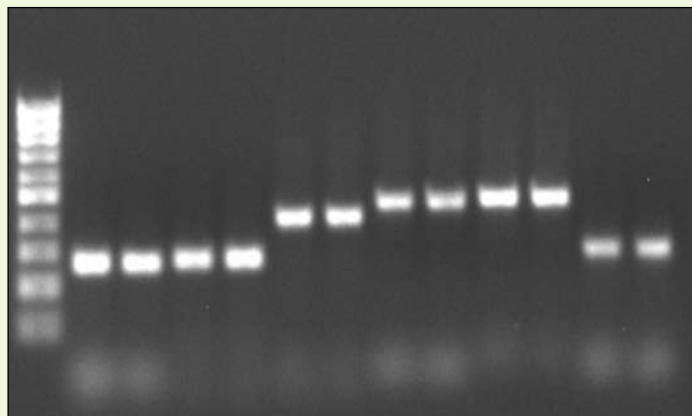


N. P. Singh

## RESEARCH HIGHLIGHTS

### Detection of *Ralstonia solanacearum* infecting solanaceous vegetables by PCR

Specific primers (RS-ITS FP and RS-ITS RP) were used to amplify intragenic transcribed spacer (ITS) region of *R. solanacearum* and the ITS region of the selected isolates were sequenced using automated DNA sequencer. All the sequences were deposited with NCBI database. A high level of ITS sequence similarity was observed among our isolates. Based on the sequence similarity among our isolates, specific primers were designed for selective identification of our *R. solanacearum*. One forward primer and two reverse primers were designed and validated. The primers selectively amplified *R. solanacearum* isolates and not the other common soil bacteria.



### Status of goan dairy farming

To study the status of dairy farmers and dairy animals in Goa, a total of 66 farmers were selected randomly from different talukas of Goa. Only 8% farmers had dairying as the primary occupation. Majority (74%) of the farmers had agriculture or horticulture as the primary occupation and 18% farmers had service or business as main occupation. Based on the number of milch animals 51.5, 27.3, 16.7 and 4.5 per cent farmers were marginal (<5), small (5-<10), medium (10-<20) and large (20 or above), respectively; while based on the land holding size 37.9, 18.2, 16.7 and 27.3, per cent farmers were marginal (0.01-1.00 ha), small (1.01-2.00 ha), medium (2.01-4.00 ha) and large (>4.0ha), respectively. The dairy farmers with fodder cultivation, chaff cutter and

milking machines were only 47%, 24.2% and 21.2%, respectively. Only 84.8%, 83.3% and 54.5% of the dairy farmers were aware of feed quality, mineral mixture and common salt feeding, respectively. Various nutritional technologies like urea molasses mineral block, urea ammoniation of crop residues and complete feed block feeding were known by only 15.2%, 4.5% and 4.5% of the dairy farmers. The population of indigenous cows, crossbred cows and female buffaloes was 2.05%, 50.42% and 7.95% of the total cattle population, respectively. The wet average and herd average were 7.62 kg/ day and 5.79 kg/ day. It can be concluded that the farmers should be made aware of scientific feeding of their animals to improve their socio-economic status.



## MAJOR EVENTS

### Union Minister of Agriculture visits the institute

Shri. Sharad Pawar, Honourable Union Minister of Agriculture and Food Processing Industries, Government of India visited the Institute on 18 May, 2011. Shri. Pratapsingh Rane, Honourable Speaker, Goa Legislative Assembly and Shri. Sripad Naik, Honourable Member Parliament, Lok Sabha were also present during the visit. The function was also attended by Scientists of the institute, officials from development departments and progressive farmers. At the outset, Dr N.P. Singh, Director, ICAR Research Complex for Goa welcomed the dignitaries and gave a brief presentation about the activities of the institute and appraised of the research work and programmes carried out at the Institute. Later the Hon'ble Minister interacted with the scientists, development departments and the farmers. The areas



requiring attention and support of the Government of India for the agricultural development of Goa was also discussed.

### Visit of Study Group of the Parliamentary Committee on Agriculture

The Study Group of the Parliamentary standing committee on Agriculture under the chairmanship of Shri Basudeo Acharia, Hon'ble Member of Parliament along with other seventeen members visited the Institute during



27-28th June, 2011. The committee was welcomed by Dr. N.P. Singh, Director. The committee had discussions on



cultivation of genetically modified food crops-prospects and effects with the representatives of the Government of Goa and stake holders including farmers, development of fisheries in Goa with the representatives of the Government of Goa and fishermen, and minimizing of post-harvest crop losses with the officials during their visit to ICAR Research Complex for Goa. The committee was apprised of various institute activities during their visit.

### Sub Group Meeting on Technical aspects of Cashew

With renewed global as well as domestic demand for cashewnut, Indian cashew industry is looking for bright perspectives in the years to come. At the same time there is a great challenge before the cashew stake holders -the researchers, development departments, cashew farmers, processors and exporters- for achieving sustainability in the Indian cashew Industry as a whole. Keeping this in view, Shri Venkatesh Hubballi, Director, Directorate of Cashew and Cocoa Development, Kochi, convened a Sub Group Meeting of Technical aspects on Cashew on 23 July,

2011 under the chairmanship of Dr. N. P. Singh, Director, ICAR Research Complex, Old Goa. The scientists from Directorate of Cashew Research, Puttur, Regional Fruit Research Station, Vengurla; Cashew Research Station, Madakkathara of Kerala; ICAR Research Complex, Old Goa and representatives from M/s Zuari Industries Ltd, Goa had a brain storming discussion about the cashew production technologies available for different cashew growing regions, constraints being faced currently and their possible solutions. Based on this, the Sub Group



Meeting drafted an action plan on Good Agriculture Practices (GAP) for further strengthening the Indian Cashew Industry in order to eventually face the global challenges. The Sub Group felt that region specific “On Farm Technology Demonstrations” could be the need of the hour to demonstrate the efficacy of the technologies and effectively motivate the cashew growers for adopting the improved production practices. In order to emphasise this, Directorate of Cashew and Cocoa Development will bring out an Action Plan on GAP drafted during the above meeting.

## Participation in Global conference on mango

The institute participated in Global Conference on Augmenting Production and Utilization of Mango: Biotic and abiotic stresses held at Lucknow during 21-24 June, 2011. About 18 varieties of mango from different parts of Goa including Mankurad, Salcette mussarat, Bardez mussarat, Culas, Fernandin, Udgo, Kesar, Amrapali, Alphonso, Maxima, Hilario, Monteiro, HB-87 and Bindao and value added products like canned mango pulp, mango squash, mango toffees etc., processed in institutes post harvest technology laboratory were displayed at All India Mango Exhibition organized on this occasion of Global mango conference. Various dignitaries, entrepreneurs and farmers visited the institute stall.



## National Workshop on PFGE organized

Anational workshop on “Molecular subtyping of microbes using Pulsed Field Gel Electrophoresis” was organized at ICAR Research Complex for Goa, Old Goa during August 20-23, 2011 for the benefit of teachers/researchers/officers of Veterinary, Agricultural Universities, private research and development organizations having a background in the field related to molecular microbiology. The workshop was sponsored by Department of Biotechnology, Government of India. The workshop was inaugurated by Dr. Earnest D’Costa, Deputy Director, Department of Animal Husbandry and Veterinary Services, Government of Goa.

Dr. N. P. Singh, Director of the Institute presided over the function. At the outset Dr. S. B. Barbuddhe, Coordinator of the workshop narrated the theme of the workshop and welcomed the participants. Dr. N. P. Singh spoke about the research activities of the Institute and importance of organizing such events. Dr. D’Costa appealed the participants to take full advantage of such workshops for enriching our knowledge. Dr. R. Ramesh, Co-coordinator of the workshop proposed the vote of thanks. Sixteen participants from different parts of the country participated in the workshop.





Lectures explaining the other techniques of molecular detection, subtyping and analysis were delivered. The practical sessions were designed to provide excellent opportunity for the participants to gain hands on

experience about pulsed field gel electrophoresis. The experience enriched the knowledge and built a confidence among the participants besides broadening their research aptitude.

## Programme on Management of Pepper diseases in the plantation organized

One day awareness programme on “Management of Pepper diseases in the plantation” was conducted on 29 July, 2011 at Netravali Village, Sanguem Taluk of Goa in association with Zonal Agricultural Office, Sanguem. During the programme, the issues regarding the pepper crop loss due to the incidence of foot rot/ wilt disease was discussed thoroughly. Since, foot rot pathogen is very versatile and none of the single approach would be effective in the management and some cases, plant parasitic nematodes in association with foot rot fungus cause slow decline, it is recommended to follow an integrated approach to manage this disease in the pepper plantations. Farmers were provided one extension folder on the pepper wilt disease management prepared by ICAR Research Complex for Goa during the campaign. Further, demonstration on Bordeaux mixture to be used in the plantation was carried out. Farmers were advised to carry out the management practices meticulously as the



problem was very severe and the crop is of high value. Director, ICAR Research Complex for Goa assured the farmers all possible technical guidance and demonstration in managing the problem. Scientist (Plant Pathology) also participated and advised the farmers in similar programmes conducted by KVK at Nagargao, Valpoi on 17-08-2011 and Bethoda, Nirankal, Ponda on 19-08-2011.

## NEW INITIATIVES

### Registration of Cardozo Mankurad

IPR Cell of the institute facilitated the registration of a local promising mango germplasm, “Cardozo Mankurad” with NBPGR, New Delhi. This germplasm is a promising selection for its attractive fruit colour, bigger fruit size

(320g) with better shelf life, higher contents (78.29%) of fibreless pulp, higher fruit yield and regular bearing tendency. This germplasm has been provided with



national identity, IC0587716 and registration number INGR11023. Since, the original mother tree is located and owned by Cardozo family of Mapusa, efforts are also under progress to register this promising selection jointly by the Institute and Cardozo family with PPV and FRA, New Delhi for commercial rights. Progeny orchard of the selection is being established for production of nucleus planting material.

## WORKSHOP/SEMINAR/SYMPOSIA/TRAININGS ATTENDED

### N.P. Singh, Director

- National Seminar on "Effect of Industrialization and changing lifestyle on land and Ocean Environment" at NIO Dona Paula during 6-7 June, 2011
- Global Conference on augmenting production and utilization of mango: biotic and abiotic stresses organized by Central Institute for Subtropical Horticulture, Lucknow, during 21-24 June, 2011
- AGM of Goa Chamber of Commerce at Cidade de Goa on 18 June, 2011
- State Level Monitoring Committee meeting for reviewing Coconut Development Board programmes- Department of Agriculture, Govt. of Goa, Krishi Bhavan, Tonca on 20 June, 2011
- Training Programme on Employers' perspective on labour related laws at NAARM Hyderabad during 4-6 August, 2011
- Eighth meeting of the VII Academic Council of Goa University at Senate Hall, Office of the VC, Goa University on 9 August, 2011.
- VII District Mission Committee (DMC) meeting of the National Horticulture Mission (NHM) and National Mission on Micro Irrigation (NHMI) at auditorium of Directorate of Agriculture, Krishi Bhavan, Tonca, Caranzalem, Goa on 17 August, 2011.

### S. Subramanian

- Peer Review Meeting of PFZ Validation Projects at Indian National Centre for Ocean Information Service (INCOIS), Hyderabad on 13th June, 2011.
- Orientation and Vision Development Workshop on 'Comprehensive District Agricultural Plan (CDAP) organized by Dept. of Agriculture, Govt. of Goa, at Panaji, on 12th August, 2011.

### S.K. Das

- Orientation and Vision Development Workshop on Comprehensive District Agricultural Plan (CDAP) organized by Department of Agriculture, Govt of Goa at Krishi Bhavan, Tonca, Panjim on 12.8.11

### V Arunachalam

- Global Conference on augmenting production and utilization of mango: biotic and abiotic stresses organized by Central Institute for Subtropical Horticulture, Lucknow, during 21-24 June, 2011

### A.R. Desai

- Global Conference on augmenting production and utilization of mango: biotic and abiotic stresses organized by Central Institute for Subtropical Horticulture, Lucknow, during 21-24 June, 2011

### S. Priya Devi

- 3rd National seminar on Kokum: Post harvest Technologies and Value-added Products Marketing, conducted by Western Ghats Kokum Foundation at Goa University, Goa during 6-7 May 2011.

## PERSONALIA

### Appointment / Transfers

Dr. M Karunakaran joined as Scientist (Animal Reproduction) w.e.f. 13-06-2011.

Shri. Jagtar Singh was appointed as Administrative Officer w.e.f. 16-05-2011.

Dr. Sanat Kumar was appointed as Farm Superintendent (T-6) w.e.f. 16-05-2011.

Shri. Deep Kumar was appointed as Farm Manager (T-4) under KVK w.e.f. 06-06-2011.

### Promotions

Ms. Chitra Madkaikar, Skilled Support Staff was promoted to Lower Divisional Clerk w.e.f. 14-07-2011.

### Retirement

Shri. Mahesh Parsekar, Technical Assistant (T-4) took voluntary retirement w.e.f. 01-08-2011.