



# काजू समाचार CASHEW NEWS

काजू अनुसंधान निदेशालय, पुत्तूर के अर्धवार्षिक वार्ता पत्र  
HALF YEARLY NEWSLETTER OF DIRECTORATE OF CASHEW RESEARCH, PUTTUR

Vol. 17 No. 2

July - December 2012

## HAPPY & PROSPEROUS NEW YEAR 2013

### Dr. N.K. Krishna Kumar, our new Deputy Director General (Horticulture), ICAR



The Director and staff of Directorate of Cashew Research (DCR) heartily congratulate Dr. N.K. Krishna Kumar on assuming new responsibility as Deputy Director General (Horticulture), ICAR, New Delhi on 9 August 2012. He obtained his Ph.D. from the United States of America in 1993 and he got Post Doctoral Fellow from UC Davis, California (2002-03). Formerly he was Director, NBAIL, Bengaluru and prior to that he was Acting Director during 2006-07 and Head of Division of Entomology and Nematology at IIHR, Bengaluru for a long period. Dr. N.K. Krishna Kumar is a renowned Entomologist in the country, particularly in the field of Insect Vectors and Vegetable Entomology. He has

34 years of professional experience and has 120 highly quoted research publications.

He has done a commendable research in the areas of pest management in horticultural crops and has developed integrated methods for the management of important insect pests. He has developed for the first time a data base on serpentine leaf miner and pest information on tomato and traced the resistance to thrips in chilli, paprika and bell peppers in relation to introduction and domestication of peppers in Europe and Asia. He is a recipient of East-West Center Award; Award of Merit, Gamma Sigma Delta, Pacific Branch and Indian Council of Agricultural Research Merit Fellowship. Dr. Krishna Kumar was instrumental in organizing of as many as 32 seminars / symposium / conferences and several brainstorming sessions and group meetings. The staff of DCR wish him all the success in his future endeavours.

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## Prof. (Dr) P.L. Saroj assumes charge as Director, DCR



Prof. (Dr) P.L. Saroj assumed the charge of Director, Directorate of Cashew Research, Puttur on 1 September 2012. He was born on 7 January 1965, has made outstanding contribution in the field

of Horticulture. He obtained his B.Sc., M.Sc. and Ph.D. in Horticulture from N.D. University of Agriculture and Technology, Faizabad, U.P. Prof. Saroj started his career as Training Associate, KVK, Gonda (U.P.) and thereafter served on various capacities such as Assistant Professor, CCS University, Meerut; Scientist (Hort.) at IIHR, Bengaluru and CSWCRTI, Dehradun; Senior Scientist and Principal Scientist at CIAH, Bikaner; Professor and Head, Horticulture / Dean (SW), SVBPUAT, Meerut and, Principal Scientist / ADG (Hort.-I) at ICAR HQ, New Delhi. His significant contributions include standardization of anatomical indices for predicting plant vigour in clonal rootstocks of *Psidium* species, propagation techniques of aonla, ber, bael, guava, pomegranate, tamarind,

lasoda and ker; suggested rootstocks and training systems for grapes; developed technology for utilization of degraded lands; standardization of recipe for various value added products; advocated mango, guava, peach and ber based cropping systems for different eco-regions and made first report on Phytoplasma in peach.

He has 23 years of professional experience in research, education, extension, coordination and management and has published over 103 research publications in Indian and International journals. Besides 6 technical bulletins, 37 book chapters, 11 technical reports and 35 popular articles are to his credit. His book 'Advances in Arid Horticulture' has been widely appreciated. Prof. Saroj is a recipient of University Gold Medal; ICAR JRF and SRF; NDUAT Alumni Award; Fellow, HHDS and ISHRD; Young Scientist Award; Bhartiya Vikash Ratna Award; Dr. B.P. Pal Scientist of the Yr. 2009 and Scientist of the Yr. 2011 Award. Recently, he has been conferred with Fellowship of the Horticultural Society of India for the year 2012, for his outstanding contribution in Horticulture. He has also visited Kenya, Uganda, Tanzania, Nepal and Sri Lanka under various official assignments.

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## FOCUS ON RESEARCH

### Suitability of Cashew Cultivation in India using GIS

R. Rejani, T.R. Rupa and M.G. Nayak

Directorate of Cashew Research, Puttur - 574 202, Karnataka

Cashew, after its introduction by Portuguese travellers in 16<sup>th</sup> Century, has adapted to the Indian climatic conditions and is presently grown in an area of about 9.91 lakh

hectares with a production of 6.92 lakh tonnes. The productivity level is also low and ranges from 436 kg/ha in Goa to 1231 kg/ha in Maharashtra. The productivity level is not

increasing over the few years. This needs introspection to identify the gap and sharpen our approaches to meet the needs of future. Cashew is now fast spreading even in non-traditional areas such as Gujarat, Jharkhand, North Eastern Hilly (NEH) Region, Andaman and Nicobar Islands, Bastar region of Chhattisgarh and Kolar (Plains) region of Karnataka. While selecting the new area, the suitability of the land and climate plays an important role in achieving sustainable production. The present study was focused to assess the land suitability of cashew for current and potential regions in India based on soil and climatic conditions using geographic information system (GIS). An experiment was conducted at Directorate of Cashew Research,

Puttur during 2007-2012 to determine the suitability of cashew cultivation in India using Arc GIS. The spatial data base of soil (Source: NBSS&LUP), cashew (survey data), surface elevation, mean annual rainfall, minimum temperature and mean annual temperature at country level was prepared using Arc GIS and its overlay with cashew area distribution was done for the crop suitability studies.

Results showed that cashew is distributed along loamy red and lateritic soil, mixed red and black soil, coastal and deltaic alluvium derived soil (Fig. 1). The elevation of the cashew growing areas ranged from 0 to 1000 m above mean sea level (MSL) and the productivity of cashew was higher in regions

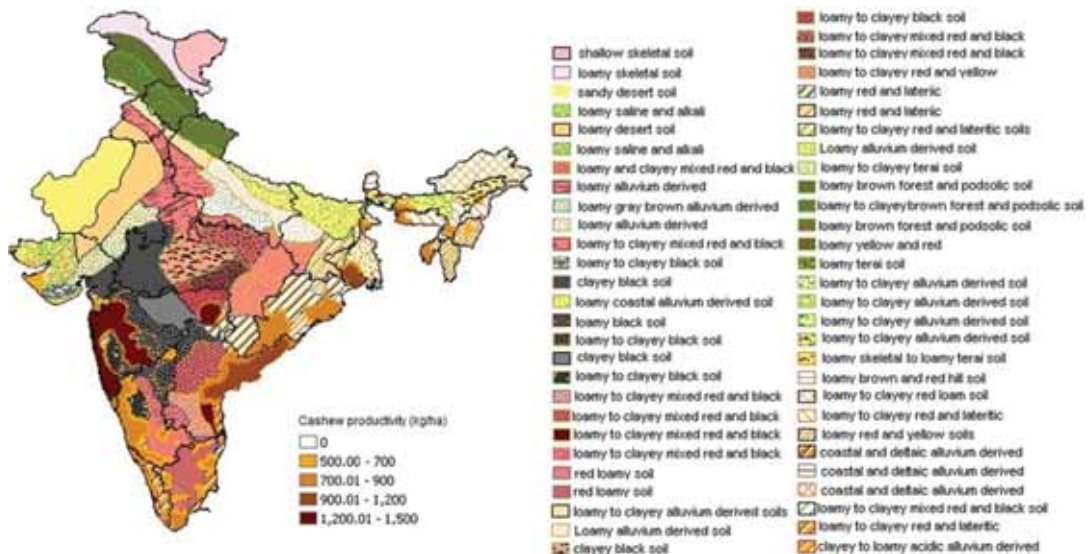
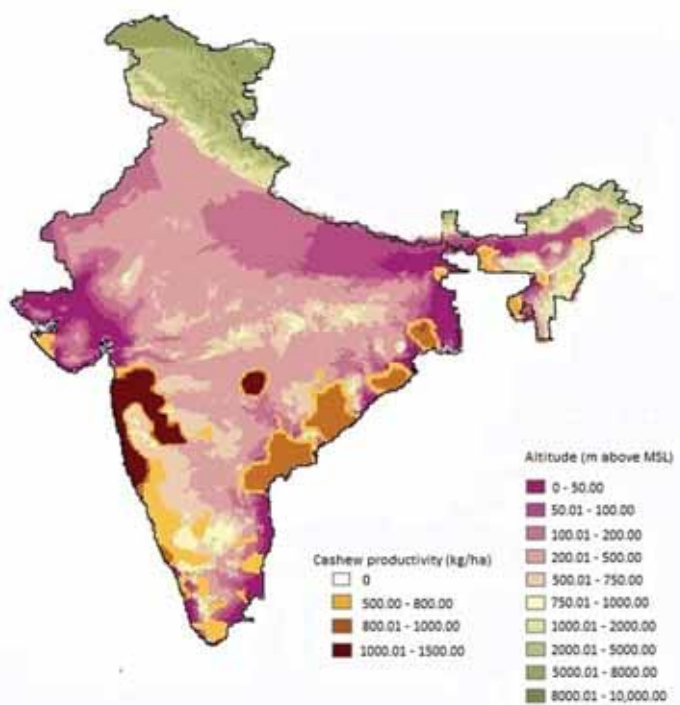


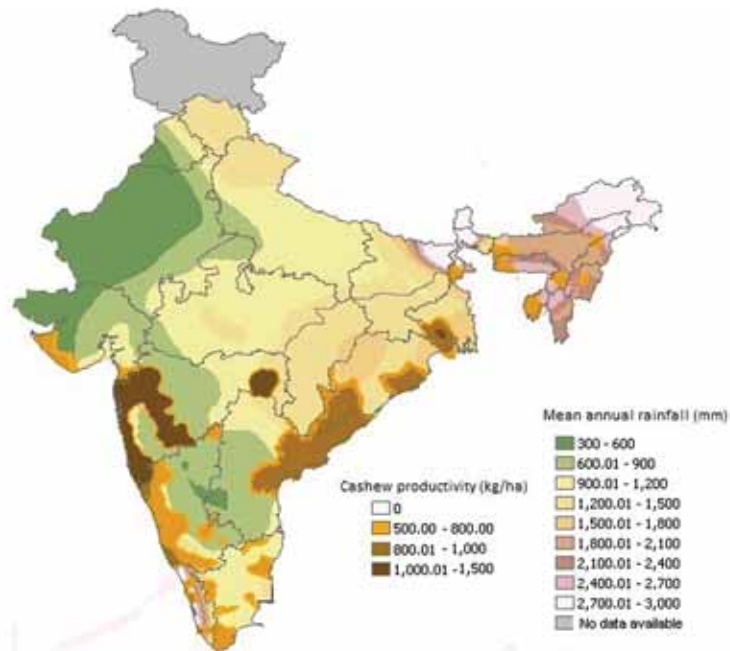
Fig. 1. Cashew area and productivity (kg/ha) overlay with soil



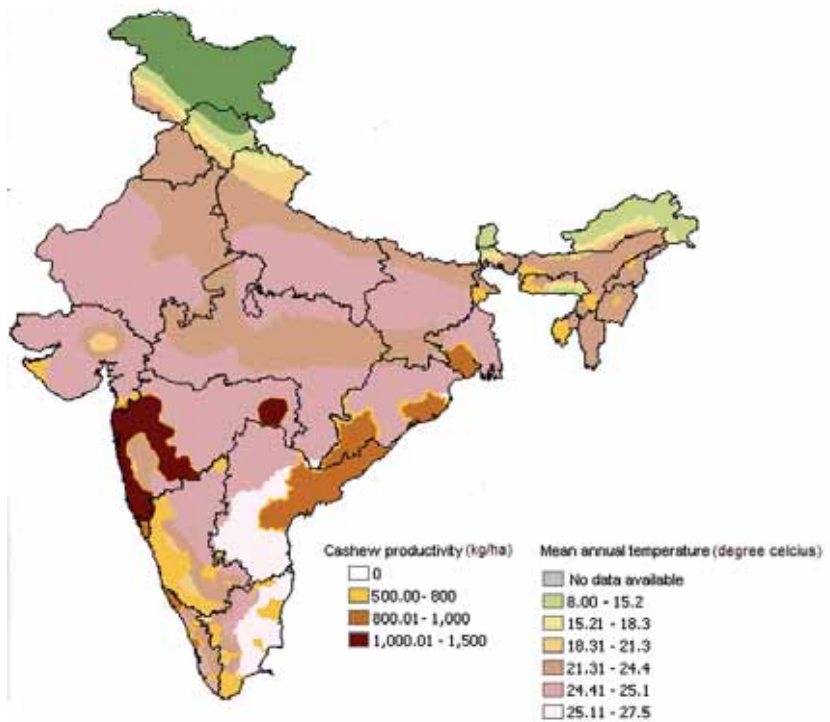
**Fig. 2. Cashew area and productivity (kg/ha) overlay with altitude above MSL**

upto 750 m above MSL (Fig. 2). It was observed that mean annual rainfall distribution in cashew growing areas ranged from low rainfall (300-600 mm in Gujarat) to high rainfall (2700 to 3000 mm in West coast and NEH region). The productivity was highest in regions with a mean annual rainfall distribution of 600 to 1500 mm (Fig. 3). The overlay maps showed that cashew is cultivated along regions where the mean annual temperature ranged from 20.0°C to even more than 27.5°C and the productivity is higher in regions where the mean annual temperature ranged from 22.5 to 27.5°C (Fig. 4). The productivity of cashew was higher in regions where the minimum temperature ranged from 10 to 22°C and was lower in regions where the minimum temperature drops below 10°C.

The site suitability map for cashew revealed that Maharashtra, Goa, Kerala, West Bengal and Odisha are highly suitable, while Andhra Pradesh, Tamil Nadu, Karnataka, NEH region and Gujarat are moderately suitable. Jharkhand, NEH region, Andaman and Nicobar Islands and Bastar region of Chhattisgarh are also moderately suitable for cashew cultivation (Fig. 5). In India, the area under cashew crop has increased from 5,65,420 ha in 1993-94 to 9,23,000 ha in 2010. Similarly, the production has also increased from 3,48,350 tonnes to 6,53,000 tonnes over the same period. In Maharashtra, the area and production of cashew crop has increased from 51,220 ha and 46,860 tonnes in 1993-94 to 1,75,000 ha and 1,98,000 tonnes in 2010, respectively. As per the estimate

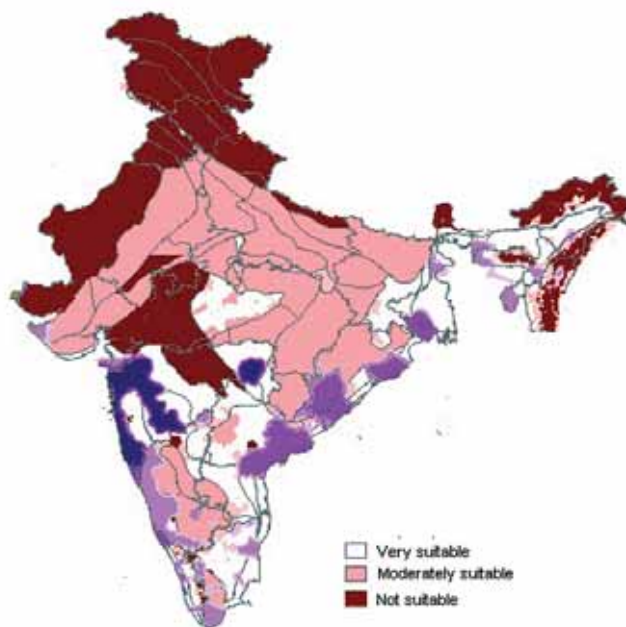


**Fig. 3. Cashew area and productivity (kg/ha) overlay with mean annual rainfall**



**Fig. 4. Cashew area and productivity (kg/ha) overlay with mean annual temperature**





**Fig. 5. Crop suitability map for cashew**

of Directorate of Cashewnut and Cocoa Development in 2011-12, Maharashtra has the higher production of 2,23,000 tonnes of raw cashewnut followed by Andhra Pradesh (1,10,000 tonnes), Odisha (97,000 tonnes),

Kerala (73,000 tonnes) and Tamil Nadu (68,000 tonnes). It also indicated an increase of about 6 per cent in raw cashewnut production in 2011-12 (6,92,000 tonnes) in comparison to previous year 2010-11 (6,53,000 tonnes).

## **THE CASHEW EXPORT PROMOTION COUNCIL OF INDIA, KOCHI : A PROFILE**

The Cashew Export Promotion Council of India (CEPCI) was established in 1955 by the Government of India with the active co-operation of the cashew industries for promoting exports of cashew kernels and cashewnut shell liquid (CNSL) and allied products from India. The CEPCI provides the necessary institutional frame-work for performing the different functions that serve to intensify and promote India's exports of cashew

kernels, CNSL, cardanol and allied products. The CEPCI has been undertaking a relentless campaign in association with Directorate of Cashewnut and Cocoa Development and the Directorate of Cashew Research (under ICAR) for achieving self sufficiency in the production of raw cashewnut in India. The CEPCI also disseminates trade enquiries for cashew kernels and allied products. The CEPCI periodically sponsors trade delegations to cashew importing

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countries to strengthen existing business ties and explore new ones. The CEPCI participates in selected important food fairs for publicizing Indian cashew and also releases advertisements in food magazines abroad to popularize Indian cashew.

The CEPCI publishes periodicals like Cashew Bulletin (monthly), Indian Cashew Journal (quarterly), Cashew Statistics and Directory of Indian Cashew Exporters (every year) for dissemination of useful information on the trade to importers, prospective importers, Government departments, research institutions and general public. The Council maintains a library and database and has set up a website viz., <http://www.cashewindia.org> to facilitate interested parties to access information easily. The CEPCI undertakes market study and research on market potential, availability of raw cashewnut for imports, country profile, etc. and circulates the reports among the members for their information and guidance. The CEPCI also liaises with the Central and State Government departments to bring to their notice the problems of the exporting community and facilitates resolution of the problems. The various activities of CEPCI since 2005 is given below.

The CEPCI organized its first International Buyer Seller Meet, Kaju India in 2006 at Kovalam, Kerala; second International Buyer Seller Meet, Kaju India in 2011 at Kollam, Kerala and Buyer-Seller Meet in 2012 in Singapore. During 2005-12, the Council regularly participated in prominent International Food Fairs such as Fine Food -Australia, SIAL-Paris, Gulfood-Dubai, Foodex-Tokyo, Anuga

Food Fair, Africa Big 7, Summer Fancy Food-USA etc. Besides participated in International Trade Fairs and sponsored delegations to Germany during May 2005, to Canada during May 2006, to Vietnam during January 2007, to USA during April-May 2009 and 2011, to Kazakhstan and Russia during March 2010, to Indonesia, Vietnam and Cambodia during October 2009, to Gambia during September 2011, to Vietnam and Singapore during March 2011, to Australia and New Zealand during Feb-March 2012 etc. The CEPCI in association with INC (International Nut and Dried Fruit Foundation) and other major world cashew players such as VINACAS (Vietnam), SINDICAJU (Brazil), ACA (representing 11 African countries) and other minor players such as Srilanka, Indonesia etc. has formed a Global Cashew Council for the benefit of the world cashew industry.

The CEPCI has set up a Laboratory and Technical Division of International standard. This laboratory has National Accreditation Board for Testing and Calibration Laboratories (NABL) and BIS Accreditations. The laboratory houses State-of-the-Art equipments to deliver most accurate results in food analysis and renders analytical services to exporters for ensuring the quality of their products. The Laboratory also extends consultancy services to exporters for technology upgradation, modernization of factories, adoption of HACCP / ISO 9000 quality systems in cashew factories etc. The Council has also set up a Training Centre attached to its Laboratory at Quilon to impart training to cashew processors,

workers in processing factories, etc. on good manufacturing practices, maintenance of hygienic standards, etc.

The CEPCI has been implementing Five Year Plan of the Govt. of India for schemes 'Modernization and Diversification of the Cashew Processing Units' by extending financial assistance to member exporters for upgrading and improving their processing and manufacturing facilities. During the XI Plan Scheme, Council disbursed 9.02 Crore to 72 eligible member exporters. The CEPCI also

provided financial assistance under MDA to the member exporters for their participation in International Fairs / CEPCI lead International Trade Delegations during XI plan period.

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## MEETINGS

### राजभाषा हिन्दी कार्यक्रम

इस छः माही में काजू अनुसंधान निदेशालय के हिन्दी कार्यान्वयन समिति की एक तिमाही बैठक का आयोजन किया गया। तिमाही बैठक में कार्यालय में हो रही हिन्दी गतिविधियों के बारे में चर्चा की गयी और जरूरी सूचना दिया गया। वार्षिक कार्यक्रमों सूची के अनुसार लक्ष्य प्राप्ति के लिए जरूरी कदम उठाने के संबंध में भी चर्चा किया गया।

जुलाई महीने में पुत्तूर नराकास की 20 वी अर्ध वार्षिक बैठक का आयोजन किया गया। जिसमें विभिन्न सदस्य



कार्यालयों के प्रधान उपस्थित थे। उसी दिन सुबह से दोपहर तक सदस्यों के लिए 'हिन्दी कार्यशाला' आयोजित किया गया। कार्यशाला में निदेशालय के कर्मचारियों सहित विभिन्न सदस्य कार्यालयों से 40 से ज्यादा कर्मचारी भाग लिए।

विगत वर्षों की तरह, सितंबर 14-28 तक हिन्दी पखवाड़ा मनाया गया। पखवाड़ा का उद्घाटन समारोह में प्रो. विष्णु भट्ट, प्राध्यापक, संत फिलोमिना कालेज, पुत्तूर, मुख्य अतिथि थे। पखवाड़ा के अवसर पर कर्मचारियों के लिए विभिन्न प्रतियोगिताओं का आयोजन किया गया। पखवाड़ा का समापन डा. पी. एल. सरोज, अध्यक्ष, पुत्तूर नगर राजभाषा एवं निदेशक, डी. सी. आर. की अध्यक्षता में हुआ। कर्नल डी. जी. भट्ट, भाषा कार्यान्वयन समिति (नराकास) / निवृत्त सेना आधिकारी मुख्य अतिथि थे समारोह के अवसर पर डॉ. टी. एन. रविप्रसाद द्वारा संपादित एक हिन्दी प्रकाशन का विमोचन किया गया। विभिन्न प्रतियोगिता पुरस्कृत कर्मचारियों को सम्मनित किया गया तथा कर्मचारियों को हिन्दी में कार्यालयीन कार्य करने के लिए नगद पुरस्कार दिया गया।



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## Vigilance Awareness Week

Vigilance awareness week was organised at DCR, Puttur from 29 October 2012 to 3 November 2012 starting with taking of pledge by all the employees for eradication of corruption. On this occasion, Dr. N. K. Krishna Kumar, DDG (Hort.), ICAR was the Chief Guest. In his address, he emphasized upon the need of creating awareness about integrity, ethics and human values at personal and professional life. He further exhorted all the employees to work diligently and honestly. Prof. P.L. Saroj, Director, DCR emphasized on the importance of vigilance awareness week and the significance of maintaining integrity and transparency in all spheres of official activities. Dr. P.S. Bhat, Principal Scientist and Vigilance Officer of this



Directorate, briefed on the theme 'Transparency in Public Procurement' and read the messages from Hon'ble Prime Minister and Central Vigilance Commissioner of India. On the concluding day of vigilance awareness week, Shri. Damodhara Nayak, Chartered Accountant delivered a talk on 'Transparency in Public Procurement'. He stressed the need for implementation of precautionary measures effectively, so that transparency, integrity and accountability can be maintained in the governance. He also spoke on various issues

and preventive measures to be taken during pre tender, tender and post tender stages.

## Institute Management Committee (IMC) Meeting

The 37<sup>th</sup> meeting of the IMC was held on 27 November 2012 under the Chairmanship of Prof. P.L. Saroj, Director, DCR. The Chairman in brief highlighted the research achievements made by the Directorate. Various administrative and financial matters were discussed and finalized. Dr. K.S. Ananda, Principal Scientist, CPCRI (RS), Vittal; Dr. Anitha Karun, Principal Scientist, CPCRI, Kasaragod; Shri. T.D.S. Prakash, Senior Finance and Accounts Officer, CPCRI, Kasaragod; Shri. N. Narayana Bhat (Non-Official Member), Noojibailu, Buntwal, Karnataka; Dr. P.S. Bhat and Dr. T.R. Rupa, Principal Scientists and Shri. T.S. Ponnaiah, Administrative Officer from DCR, Puttur attended the meeting. The meeting was ended with the vote of thanks by Shri. T.S. Ponnaiah, Member Secretary, IMC.

## Annual Group Meeting of AICRP on Cashew-2012

The Annual Group Meeting of All India Coordinated Research Project (AICRP) on Cashew-2012 was held during 20-22 November 2012 at Navsari Agricultural University (NAU), Navsari, Gujarat. The Annual Group Meeting was inaugurated by Dr. N.K. Krishna Kumar, DDG (Hort.), ICAR. Dr. Krishna Kumar opined that cashew production technologies need to be re-oriented towards enhancing productivity under different ecoregions. He suggested that even with the existing production technologies, cashew yields can be doubled with proper management. Dr. Krishna Kumar also appreciated the farmers of Gujarat for being prudent and enterprising who can induce ripple

effect in horticulture. Dr. A.R. Pathak, Hon'ble Vice Chancellor of NAU, Navsari, Gujarat presided over the Inaugural function. Later, Prof. P.L. Saroj, Director, DCR and Project Coordinator, AICRP on Cashew, presented the highlights and action taken report of AICRP on Cashew for 2011-12. He expressed the hope that these important research findings will



**Dr. N.K. Krishna Kumar, DDG (Hort.), ICAR, delivering the Inaugural Address**

induce enthusiasm among cashew farmers to maximize the yields by adopting scientific management practices. The keynote address was given by Dr. N.L. Patel, Dean, ASPEE College of Horticulture & Forestry, NAU during inaugural session.

The scientists of the respective disciplines from each Centre presented the salient achievements of the experiments at different AICRP-Cashew Centres *viz.*, Bapatla, Bhubaneswar, Chintamani, Darisai, Jagdalpur, Jhargram, Madakkathara, Paria, Pilicode, Vengurle and Vridhachalam as well as, the Co-operating Centres *viz.*, Arabhavi and Goa. The presentation was made in four main theme areas *viz.*, (i) Germplasm Management and Crop Improvement (ii) Production Technology (iii) Plant Protection (iv) Post Harvest Management. Two separate technical sessions

were organized *i.e.*, (i) Formulation of new proposals and (ii) Interaction of development departments and stakeholders. Four new programmes *viz.*, a) Nutrient management for yield maximization in cashew b) Evaluation of production potential of newly developed variety Jhargram-2 at different spacings c) Characterization of germplasm for cashew apple and d) Varietal screening of cashew apple for preparation of RTS and Jam were discussed and approved. Further, there was a session on Interaction Meet between Development Departments and Research Centres in which the representatives from state owned cashew development corporations of Andhra Pradesh, Odisha and Chhattisgarh mentioned about their achievements and constraints regarding availability of the quality planting material for area expansion.

In the Plenary Session, the recommendations of different technical sessions were presented. The Chairman of this Session, Dr. A.R. Pathak, Vice-Chancellor, NAU, stressed upon creating awareness among cashew farmers regarding scientific cashew production technologies and also orienting the research activities under AICRP-Cashew to address the major issues.



**Release of Annual Report 2011-12 of AICRP-Cashew by the dignitaries**

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## Deputy Director General (Hort.), ICAR visited DCR

Dr. N.K. Krishna Kumar, DDG (Hort.), ICAR, New Delhi visited DCR, Puttur during 28-29 October 2012. He has discussed in detail about the ongoing research programmes at DCR and also took stock of the research work undertaken by the scientists since inception of the Directorate. The DDG (Hort.), in his remarks, expressed concern about the low productivity of cashew in the country. He emphasized that the scientists should play a pivotal role in technology development and research coordination since DCR is the nodal organization in the country involved in the cashew research and development. He expressed that a separate block need to be developed and maintained by integrating best performing variety and technologies developed at this Directorate, so as to maximize the per unit productivity of cashew in Southern Karnataka. He emphasized that some programmes should be formulated as



flagship programmes in the area of expertise to address the major problems of cashew. After in-depth interaction, two programmes *i.e.* (i) Maximization of cashew productivity and (ii) Integrated management of cashew pests, were proposed to take up in future. He categorically emphasized that the research priorities of XII Plan should be need based and target oriented. While formulating research strategy, there is a need to analyze the gaps in the cashew productivity and to suggest interventions in a focused manner. Dr. Krishna Kumar visited the laboratories, nursery and experimental farm.

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## TRANSFER OF TECHNOLOGY EFFORTS

### Participation in Exhibition

2-4 November 2012 - Krishi Yantra Mela organized at Vivekananda Engineering College, Puttur by CAMCO, Puttur. This Directorate put up stall to display machineries required for on-farm processing of cashewnut to the farmers.

20-22 December 2012 - Golden Jubilee Exhibition organized at Appangala, Kodagu by Cardamom Research Centre, IISR. This Directorate put up stall to display various

cashew production and processing technologies to the farmers.

### Radio Talk

- Recorded a Radio talk on Rejuvenation of senile cashew orchards and broadcast by All India Radio, Mangalore on 31 August 2012.
- Recorded a Radio talk on Impact of climate change in agriculture by All India Radio, Mangalore on 3 October 2012.

## Visitors

Visitors	Organization	Number	Date of visit
Farmers Officials	Dept. of Agriculture, Andaman and Nicobar Islands	29 (24+5)	4-10-12
Students	College of Horticulture, Sirsi, Karnataka	36	9-10-12
Students Teachers	IRD-Uppalige cluster students	57 (50+7)	10-10-12
Farmers	DATC, Chikmagalur, Karnataka	50	12-10-12
Students	Dept. of Applied Zoology, Mangalore University	50	12-10-12
Farmers	Dept. of Agri, Uttara Kannada district	40	26-12-12

Visitors were taken to various experimental plots, cashew nurseries, cashew museum and laboratories and were appraised of the achievements and technologies developed by the Directorate.

## Supply of Planting Material

More than 1,00,000 cashew grafts of high yielding and recommended varieties were produced under two different revolving fund schemes viz., Mega Seed Project and DCCD Revolving Fund besides the graft production under Institute Revenue Generation programme. Cashew grafts have been supplied to the farmers and developmental agencies.

## Technical Publication

पत्रक: काजू की उन्नतशील प्रजातियाँ

## STAFF NEWS

### Appointments

Prof. P.L. Saroj - Joined as Director on 1 September 2012.

Dr. M.G. Nayak - Acting Director from 1 July 2012 to 31 August 2012.

### Promotions

Dr. T.N. Raviprasad, Senior Scientist (Agricultural Entomology) - Promoted as Principal Scientist w.e.f. 1 January 2009.

Dr. D. Balasubramanian, Senior Scientist (Agricultural Engg. - ASPE) - Promoted as

Principal Scientist w.e.f. 4 March 2012.

### Retirement

Shri. Deranna Gowda, Skilled Support Staff - Superannuated on 31 July 2012.

Shri. K. Umanath, Technical Assistant (T-2) (Driver) - Superannuated on 31 October 2012.

### Awards / Honours

Prof. P.L. Saroj, Director - Conferred with Fellowship of the Horticultural Society of India for the year 2012, for his outstanding contribution in Horticulture.

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