



# काजू समाचार CASHEW NEWS

काजू अनुसंधान निदेशालय, पुत्तूर के अर्धवार्षिक वार्ता पत्र

HALF YEARLY NEWSLETTER OF DIRECTORATE OF CASHEW RESEARCH, PUTTUR

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## FROM THE DIRECTOR'S DESK

Cashew farmers and cashew industries are the stakeholders of this Directorate. Cashew Field Day, Annual Cashew Day and Innovative Cashew Farmers Meet - 2012 were held in the interest of cashew farmers and DCR - KCMA Industry Meet 2012 was organised in the interest of cashew industries during this period.

Efforts have been taken by Development Departments of Government of Tamil Nadu based on the report of team of scientists of AICRP-Cashew Centre at RRS (TNAU), Vridhachalam to mitigate the damage caused by 'Thane cyclone' which had hit coastal districts of Tamil Nadu on 30 December 2011. The cashew graft production of the recommended varieties of cashew has been enhanced by Vridhachalam Centre based on the request of Tamil Nadu State Govt. to plant the area in which cashew plantations existed prior to 'Thane cyclone'. The Walmart Foundation / CARE, India has also come forward to help the small scale cashew farmers affected by this cyclone. In Tamil Nadu, Walmart Foundation's Cashew Value Chain Initiative is currently underway.

The economic recession in the West still casts a shadow on the prospects of Indian cashew industry as per Chairman of the Cashew Export Promotion Council of India (CEPCI). So it is very essential that we should develop a strong

and stable domestic market for cashew kernels within the country in order to protect the interests of both Indian cashew farmers and Indian cashew industry on which several lakhs of persons depend.

The United Nations Industrial Development Organisation (UNIDO) is planning to provide modern technology to cashew farmers of Mtwara Region of Tanzania to produce juice and wine from cashew apple in order to help farmers to improve their income from cashew crop by value addition to cashew apple. In India this technology is already available and effort is needed to commercialise the preparation of wine from cashew apple and market it. The UNIDO office at Delhi had contacted this Directorate and Kerala Agricultural University some time in the past for submitting a project proposal to produce bio-ethanol from cashew apple and accordingly it was prepared and submitted to UNIDO for financing. Because of economic recession in the West, the funding of UNIDO was adversely affected and hence the project did not take off. Now there is a need to revisit the feasibility of producing bio-ethanol from cashew apple. The quantity of cashew apple is about 8 to 10 times of quantity of cashewnut and at present it is estimated that about 90 per cent of cashew apple is getting wasted in India except in Goa where feni is

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prepared from it. In case the finance does not come from UNIDO, the DCR needs to approach ICAR to provide funds during XII Plan to take up this research project to produce bio-ethanol from cashew apple. Gasifier has already been developed at this Directorate in collaboration with CIAE, Bhopal for producing producer gas from Cashew Shell Cake (CSC). Now this needs to be commercialised. Technology has also already been developed to produce briquettes from CSC mixed with saw dust which has also great scope for commercialisation.

New lines of research are being taken up in cashew recently. Researchers from Department of Chemical Engineering of SSN College of Engg., Chennai and AC Tech. Anna University, Chennai in collaboration with University of Louisiana, USA have shown that a novel adsorbent material produced by them from chemically modified cashewnut shell can

remove harmful heavy metals such as copper, cadmium, nickel and zinc from aqueous solutions and could therefore be used to mop up heavy metals from industrial wastewater. A team of scientists of AICRP - Cashew Centre, Madakkathara, Thrissur has shown, based on the preliminary tests, that 'Vanya silk' (wild silk) can be produced from *Cricula trifenestrata*, a minor cashew pest (moth) found in cashew plantations. It is also reported that silk threads made from cocoons of *Cricula trifenestrata* are of high quality.

The undersigned wishes to thank all the readers of this Cashew News for their valuable opinions offered from time to time which helped this Directorate to bring out this publication to cater to their needs.



[M.G. Bhat]

Director

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## FOCUS ON RESEARCH

### Development of Concentric Drum type Rotary Grader for Raw Cashewnuts

**D. Balasubramanian**

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Grading of raw cashewnuts is the first step in mechanized cashewnut processing followed in many countries for the extraction of edible kernels other than India. Raw cashewnuts grading and quality based price structure can encourage the farmers to harvest fully matured nuts. Quality indicators of raw nuts are moisture content, fractions of defective nuts, size and extraneous matter. The purpose of grading is to aid product standardization and to facilitate marketing. Grading is the process of separation of mixtures into their more homogeneous parts (fractions). Screens of various designs are widely used for size separation process. Considering the irregular shape of raw cashewnuts, a concentric drum type rotary sieve grader is developed in view of

minimizing clogging of nuts, compactness, self agitation and more opportunity to register with screen holes to grade raw cashewnuts based on its size.

Motorized concentric type rotary sieve grader consists of bucket elevator, concentric rotary sieve drums and drive mechanism. Blinding of nuts inside the sieve holes can be prevented by rotary motion due to gravitational fall. Hopper bottom facilitates collection of graded nuts just below each concentric rotary drum. This grader is operated by a 2.0 hp electrically powered motor. The effective width of the nut ( $W_c$ ) is used as criteria for grading. When the nuts were passed on to the inner most sieve cylinder, it retained oversize nuts and allowed under size nuts to fall

through the sieves, thus transferring to the next concentric sieve cylinder. In a similar manner, nuts smaller than sieve size of the outermost sieve cylinder pass through the sieve hole and are collected in the outlet. While retained nuts were conveyed to the outlet provided at the discharge end of the sieve cylinder due to force generated by cylinder inclination and rotational movement. Certain machine and material parameters *viz.*, cylinder length, rotational speed, bulk density, cylinder slope, and feed rate which influence the grading efficiency were analyzed and reported. Performance of the concentric sieve grader was evaluated in terms of purity of the product obtained at the product outlets, fraction yield of the material collected in product outlets, degree of extraction and efficiency of screens (Table 1).



**Concentric drum type rotary grader for raw cashewnuts**

**Cylinder length vs. grading efficiency:** Grading efficiency was found to increase significantly as the cylinder / screen length was increased from 0.6 to 1.2 m. As the length increased within this range, opportunity for the nuts to register with the sieve perforations increased. Optimum length of the sieve cylinder was computed as 1.2 m for a fixed feed rate, suggests that further increase in the length of screen would not result in significant increase in the grading efficiency.

**Rotational speed (rpm) vs. grading efficiency:**

Nut movement in the grading area depends on the rotational speed of the sieve cylinder and it influenced the grading efficiency. Increasing trend in the grading efficiency was observed for the decreasing rotational speed of the sieve cylinder. Lesser relative motion (drag effect) between the nuts and the cylinder at lower speeds ensures ample opportunity for nuts to pass through the sieve perforation.

**Bulk density vs. grading efficiency:**

Bulk density of raw cashewnuts significantly influenced the response variable of sieve cylinder. When the feed mixture was denser, the amount of under size nuts in the feed material became lesser. As the ratio increases, the oversize nuts are more successful in reducing the number of sieve holes available for under size nuts and tend to convey the under size nuts further down the rotary screen.

**Cylinder slope vs. grading efficiency:**

Relatively higher response was found between angle of inclination and grading efficiency of rotary screen grader for raw cashewnuts. Purity of the material obtained at the outlet showed a significant variation in the performance of the grader as the angle of sieve cylinder increased from 0.1 rad (6°) to 0.26 rad (18°). Tendency of the entering nuts gaining higher momentum at higher slope and missing the screen perforations in the upper layer lowered the efficiency. Residence time of nuts inside sieve cylinder increased as the slope decreased and it provided greater opportunity for the nuts to register in the sieve holes during its travel from feed to discharge end.

**Feed rate vs. grading efficiency:**

The effect of feed rate vs. grading efficiency was determined keeping other independent variables constant. The effectiveness of grading showed a decreasing trend with increasing feed rate. Experimental data revealed that it could be possible to achieve on an average grading efficiency up to 92.58 per cent using rotary grader developed for raw cashewnuts.

**Table 1. Performance of concentric drum type rotary sieve grader for raw cashewnuts**

Feed rate (kg h <sup>-1</sup> )	Purity of the product at outlets				Fraction yield of material in product outlets				Degree of extraction				Effectiveness (%)
	>24.1 mm	22.1-24.0 mm	20.1-22 mm	<20 mm	>24.1 mm	22.1-24.0 mm	20.1-22 mm	<20 mm	>24.1 mm	22.1-24.0 mm	20.1-22 mm	<20 mm	
100	1.000	0.960	0.868	1.000	0.250	0.260	0.283	0.208	1.000	1.000	0.981	0.834	<b>0.932</b>
150	1.000	0.953	0.856	1.000	0.250	0.262	0.284	0.204	1.000	1.000	0.973	0.818	<b>0.931</b>
200	0.998	0.955	0.865	1.000	0.250	0.261	0.283	0.202	1.000	0.998	0.978	0.808	<b>0.928</b>
250	0.991	0.951	0.839	1.000	0.252	0.261	0.290	0.197	1.000	0.993	0.971	0.787	<b>0.917</b>
300	0.985	0.913	0.841	1.000	0.254	0.271	0.284	0.193	1.000	0.988	0.954	0.771	<b>0.904</b>

## DIRECTORATE OF CASHEWNUIT AND COCOA DEVELOPMENT (DCCD) – A PROFILE

The Directorate of Cashewnut and Cocoa Development (DCCD), Kochi was established in 1966 as a subordinate office of the Department of Agriculture and Cooperation of the Union Ministry of Agriculture. The principal mandate of the Directorate is promotion of cashew and cocoa cultivation in the country. The Government of India (GOI) has contemplated developmental measures to augment cashew production in the country through the implementation of centrally sponsored schemes in various states. These centrally aided programmes for the promotion of cashew were formulated and monitored by the DCCD, which got executed through various state development agencies until the commencement of the macro management system in Agriculture during 2000-01. During 2005-06, the National Horticulture Mission (NHM), with the financial assistance provided by the GOI has been formed for the overall development of horticulture sector in India including cashew. Since the domestic production of cashew is not able to meet the requirement of the industries, the developmental activities were accelerated in all the traditional and non-traditional cashew growing states. Under NHM, GOI provides assistance for the development of cashew by adopting an integrated approach for enhancing the production and productivity. The DCCD is also responsible for Human Resources Development (HRD) through

training and field visits as well as creation of infrastructure for post harvest management and marketing. The progress made in the implementation of various development programmes of cashew since 2005 in terms of production programmes, transfer of technology and infrastructural build up along with financial achievement is given below.

Prior to the implementation of NHM programme, the area under cashew was 7.99 lakh ha with annual production of 5.44 lakh tonnes of raw cashewnuts and an average productivity of 681 kg/ha during 2004-05 in India. With the developmental programmes implemented under NHM, the area under cashew plantations has increased to 9.91 lakh ha with annual production of 6.92 lakh tonnes of raw nuts and an average productivity of 749 kg/ha during 2011-12. Since the internal production of raw cashewnuts is almost 50 per cent of the domestic demand, India depends heavily on import of raw nuts from Asian and African countries. In order to keep pace with the increasing demand of raw cashewnuts from cashew processing units, the developmental activities are being augmented in all the traditional and non-traditional cashew growing states through the execution of various centrally sponsored programmes under NHM in two ways

viz., (i) State efforts through work plan funded by the DCCD and (ii) State work plan executed by concerned State Govt. according to their priorities and monitored by the DCCD. In the case of State work plan executed by concerned State Govt., the DCCD has been entrusted with the responsibility of monitoring of the programme chalked out and implemented by the State development departments. Under the direct execution of the programmes by DCCD, the following programmes formulated for development of cashew and the same was implemented with the association of State development departments, Research institutes, Cashew development / Forest plantation corporations, ICAR Research institutes, KVKs, NGOs etc.

New plantation development, replanting and establishment of model / small nurseries are the major programmes implemented by the State Horticulture Mission (SHM) for the development of cashew. The implementation of these programmes along with other supporting measures are being monitored by DCCD.



In this connection, the Ministry has constituted Joint Inspection Team (JIT) for various states to monitor the implementation of NHM programme and to evaluate the status of work carried out in the field under various schemes implemented by SHM as per the approved action plan in every year. The JIT consists of the representatives from NHM, GOI, State Agriculture University / ICAR Institute and DCCD. The progress of achievements made under SHM and NHM during 2005-11 is given in Tables 1 and 2.

**Table 1. Developmental activities of cashew under SHM during 2005-11 (implemented by states)**

(₹ in lakhs)

Sl. No.	Programme	Target		Achievement	
		Physical	Financial	Physical	Financial
1.	New planting (ha)				
	Fresh planting	1,51,979		1,19,144	8,829.940
	Maintenance	59,861	12,398.594	45,263	
2.	Replanting (ha)				
	Fresh planting	57,081		38,692	3,763.579
	Maintenance	2,883	7,081.837	2,566	
3.	Establishment of nursery (Nos.)	83	349.500	28	170.408
4.	Water harvesting structures (Nos.)	925	263.500	129	4.019
5.	Production of cashew grafts (Nos.)	3,58,100	47.830	2,75,900	17.710
6.	FLD (Nos.)	773	114.170	105	16.260
7.	Home scale processing units (Nos.)	14	11.000	3	1.750
8.	Training activities (Nos.)	160	19.800	75	5.490
9.	Publicity/Seminar/Workshop (Nos.)	18	7.920	22	5.970
10.	Organic farming (ha)	2,000	200.00	-	-
11.	Construction of vermicompost pits (Nos.)	4,000	1,200.00	500	150.000
12.	Mission management	-	104.210	-	95.480
	Total		21,798.361		13,060.606 (59.9%)



**Table 2. Developmental activities of cashew under NHM during 2005-11 (implemented through DCCD)**  
(₹ in lakhs)

Sl. No.	Activity	Govt. of India sanction		Achievement	
		Physical	Financial	Physical	Financial
1.	Replanting of senile plantations of corporations (ha)				
	(a) Replanting afresh	22,218		18,786	
	(b) 2 <sup>nd</sup> year maintenance	18,896		18,753	
	(c) 3 <sup>rd</sup> year maintenance	16,640	2,695.755	16,485	2,246.001
2.	Rejuvenation of corporation plantation (ha)				
	1 <sup>st</sup> year	2,170	162.750	1940	145.500
	2 <sup>nd</sup> year	1,940	87.300	1940	87.300
	3 <sup>rd</sup> year	1,940	58.200	1940	58.200
	Total		308.250		291.000
3.	Establishment of new plantations (ha)				
	Fresh planting	15000	1507.125	2550	234.938
	2 <sup>nd</sup> year maintenance	550	22.000	550	18.563
			1529.125		253.501
4.	Technology dissemination				
	Frontline Technology Demonstration (No. of plots of 1 ha)				
	(a) Farmers field (FP+M2)	312.6	65.472	311.6	64.013
	(b) Institutional farms (FP+M2+M3)	605	90.573	455	63.310
	(c) Project mode (FP)	100	10.000	100	9.835
			166.045		137.158
5.	Popularization on utilization of cashew apple				
	(a) No. of trainings		235		192
	(b) No. of trainees	3,400	25.722	2,700	21.379
6.	Evaluation on the impact of cashew production technologies	-	7.613	-	7.613
7.	Pest and disease management - survey surveillance and training	-	13.150	-	9.300
8.	Information upgradation - production forecast	-	15.300	-	6.679
9.	Publicity for crop promotion	-	102.690	-	82.030
10.	Establishment of model nursery	2	36.000	2	36.000
11.	Farm level processing of cashewnut		16.00		-
12.	Upgradation of existing processing industries		56.00		-
13.	Mission management	-	86.911	-	48.980
14.	Human resources development	-	69.040	-	21.609
	Total		5,127.601		3,161.256 (61.7%)

FP = Fresh planting, M2 = 2<sup>nd</sup> year maintenance, M3 = 3<sup>rd</sup> year maintenance.

The various programmes implemented by DCCD under NHM are as follows:

1. New plantation development with high yielding varieties.
2. Replacing old senile cashew gardens and replant with HYV of cashew.
3. Technology dissemination by front line technology demonstration (FLD).
4. Pilot demonstration on utilization of cashew apple.
5. Pest and disease management - survey, surveillance and training.

6. Evaluation of impact of cashew production technology.
7. Establishment of model nurseries.
8. Publicity for crop promotion.
9. Human resources development.

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## NEWS FROM DEVELOPMENT FRONT

### Cashew Field Day

A Cashew Field Day was organized by this Directorate on 29 February 2012 at Manchi, Buntwal taluk of D.K. district, Karnataka under the financial assistance from DCCD, Kochi and National Bank for Agriculture and Rural Development (NABARD). Nearly 150 participants representing farmers, scientists, officials from Development Departments, Banks and, Press and Media personnel participated in the event. Field visits to demonstration plots were arranged in the morning session and later on group discussion cum seminar was organized for the benefit of participants. Dr. M.G. Nayak, Principal Scientist, DCR, in his welcome address stressed upon the importance of high density planting system in cashew in order to realize higher profit from cashew. Shri. N.N. Bhat, a progressive cashew farmer who facilitated in organizing the programme at Manchi, in his address, shared his experience regarding high density planting in cashew. Shri Subraya Pai, in his speech, mentioned about his experience in cashew processing. He stressed the need to view cashew as a commercial crop. Shri. Vajraksha Malli, Chief Guest of the function delivered the inaugural address. He felt that cashew should be included as a component of integrated farming for higher benefit. Dr. M.G. Bhat, Director, DCR delivered the presidential address. In his presidential address, Dr. Bhat briefed about cashew scenario



in India. He emphasised that farmers and processors play equal role in the success of cashew sector. He also urged the farmers to grow several crops such as cashew, coconut, arecanut etc. instead of growing only one crop so as to reduce risk. Later, Smt. Yamuna Lingappa, progressive cashew farmer spoke about the importance of fibre present in cashew apple.

### Annual Cashew Day

Annual Cashew Day was organized at this Directorate on 9 March 2012 under the financial assistance from DCCD, Kochi and NABARD. Nearly 200 participants representing farmers, scientists, officials from Development Departments, Banks and, Press and Media personnel participated in the event. Field visits were arranged at this Directorate and in a demonstration farmers plot at Papanadka in Irde village of Puttur taluk. Later, a group discussion



cum seminar was organized. Chief Guest of the function Shri. Achuta Moodithaya, in his inaugural address, expressed that DCR is a ray of hope for cashew farmers. In order to have control over marketing of cashew, he felt that there is a need to establish a co-operative union similar to CAMPCO which is for arecanut and cocoa. Dr. M.G. Bhat, in his presidential address highlighted the research achievements of DCR and improved cashew production technologies developed by this Directorate. He added that scientists have to play a crucial role to transfer the technologies from

research centres to farmers fields in order to increase the productivity of cashew and making the country self sufficient in cashew production. In the Seminar a strong feeling for forming a cashew farmers association was emerged. The house felt that a small working committee with the guidance of DCR Puttur can work out the modalities for forming a cashew growers association. This was followed by Questions and Answers session between farmers and scientists.

### **DCR - KCMA (Karnataka Cashew Manufacturers Association) Industry Meet - 2012**

A 'DCR-KCMA Industry Meet 2012' was organized on 16 April 2012 at KCMA premises, Bejai, Mangalore to have an interaction with cashew industry and to learn their problems. The theme of the Meet was 'Problems and prospects of mechanization in cashew processing'. The members representing cashew industry along with scientists of DCR participated and discussed the various issues related to mechanization of cashew processing. Mr. Prakash Kalbhavi, representing KCMA gave a talk on the requirements of the industry while Dr. D. Balasubramanian, Senior Scientist (AS&PE), DCR presented the technologies developed by DCR with respect to mechanization of processing. This was followed by industrialist – scientist interaction on future of cashew industry.

### **Innovative Cashew Farmers Meet - 2012**

Innovative Cashew Farmers Meet - 2012 was organized at this Directorate on 18 June 2012 to identify and document grass-root level innovations made by farmers in cashew cultivation / processing and felicitate them. Around 75 cashew farmers including innovative and



progressive farmers participated in the Meet. The Meet discussed innovative approaches developed by innovative farmers such as value added products from cashew apple (cashew apple chocolate, cashew apple halwa, cashew apple suttavvu / appa and cashew apple payasa); control of tea mosquito bug using tobacco decoction; use of vermi-wash for better growth of young cashew plants; use of plastic mulch in cashew orchards for water management and innovations in improvisation of cashewnut cutting machinery. The innovations were documented from Karnataka, Maharashtra and Tripura. Sri. Ramamurthy, a progressive cashew farmer shared his experiences on method of growing black pepper as intercrop in existing cashew orchard and he indicated that cashew stem and root borer (CSR) incidence was minimum in cashew plants having black pepper trailed on them. A farmer-scientist interaction followed where various aspects of cashew farming were discussed in detail with exchange of innovative ideas from cashew farmers. Five innovative cashew farmers were felicitated for their contributions on this occasion. Mr. N.N. Bhat, a progressive farmer and non-official member of IMC of DCR was the Chief Guest and he appreciated the efforts of DCR in recognising the innovative cashew farmers.

## **MEETINGS**

### **राजभाषा हिन्दी कार्यक्रम**

इस छः माही में निदेशालय में पुनूर नगर राजभाषा कार्यान्वयन समिति (नराकास) की दो अर्ध वार्षिक बैठकें और निदेशालय के हिन्दी कार्यान्वयन समिति की दो तिमाही बैठकों को आयोजित किया गया ।

तिमाही बैठकों में कार्यालय में हो रही हिन्दी गतिविधियों के बारे में चर्चा की गयी और जरूरी सूचना दिया गया । वार्षिक कार्यक्रम सूचि के अनुसार लक्ष्य प्राप्ति के लिए जरूरी कदम उठाने संबंध में भी चर्चा किया गया और निर्णय लिया गया ।



जुलाई महीने में पुत्तूर नराकास की 21वीं 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।

हर साल के जैसे, सितंबर 14-28 तक हिन्दी पखवाड़ा मनाया गया। पखवाड़ा के अवसर पर कर्मचारियों के लिए विभिन्न प्रतियोगिताओं का आयोजन किया गया। कर्मचारियों को हिन्दी में कार्यालयीन कार्य करने के लिए नगद पुरस्कार दिया गया।

25 जून को पुत्तूर नराकास का 22 वीं अर्धवार्षिक बैठक हुआ। श्री अजय कुमार श्रीवास्तव, उप निदेशक, (राजभाषा कार्यान्वयन) बेंगलूर, बैठक में मार्गदर्शन किए। 30 जून को सेवा निवृत्त हो रहे, पुत्तूर नराकास के अध्यक्ष एवं निदेशक डा. एम. जी. भट्ट जी को इसी अवसर पर सम्मान के साथ भावपूर्ण विदाय दिया गया।

### **Institute Management Committee (IMC)**

**Meeting:** The 35<sup>th</sup> and 36<sup>th</sup> meetings of the IMC were held on 31 January 2012 and 26 March 2012, respectively under the Chairmanship of Dr. M.G. Bhat, Director, DCR, Puttur. During the meetings, the progress made in the different ongoing research projects and other aspects related to the management of this Directorate were discussed. The equipments to be purchased and the works to be undertaken during the year 2011-12 of XI Plan period were finalized. Dr. M. Hanumanthappa, Associate Director of Research, ZARS, Brahmavar, Udipi; Dr. K.S. Ananda, Principal Scientist, CPCRI (RS), Vital; Dr. Anitha Karun, Principal Scientist, CPCRI, Kasaragod; Shri. P. Balabrahmaiah, Senior Finance and Accounts Officer, CPCRI, Kasaragod; Dr. P.M. Haldankar (Non-Official Member), Professor and Head, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli; 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.

### **Research Advisory Committee (RAC)**

**Meeting:** The first meeting of the VI RAC (16<sup>th</sup> meeting) of the Directorate was held during 21-22 May 2012 under the chairmanship of Dr. P. Rethinam, Former Executive Director,

APCC and Former ADG (Plantation Crops), ICAR. Dr. M.G. Bhat, Director, DCR welcomed the dignitaries and briefed the RAC about the present scenario and prospects of cashew production in India and gave an overview of research activities on cashew being done at this Directorate. A technical bulletin on 'Fauna of Spiders in Cashew Ecosystem' was released by the Chairman. Later, the chairman of the VI RAC made his opening remarks about the research activities that are being carried out at this Directorate. He opined that research work should cater to the needs of the farmer. He pointed out that the North Eastern Hilly regions have good potential for cashew area expansion and nurseries need to be established locally there to avoid transportation cost of cashew grafts. He



mentioned that follow-up and monitoring should be done for adoption of recommended technologies in the farmers' fields and further impact studies need to be documented. Dr. K.U.K. Nampoothiri, Former Director, CPCRI and M.S. Swaminathan Research Foundation, Jeypore, Odisha; Dr. K.V. Ramana, Former ADG (Hort.), ICAR, New Delhi; Dr. S. Chandrasekaran, Professor, Centre of Plant Protection Studies, Tamil Nadu Agricultural University, Coimbatore; Dr. M. Udayakumar, Emeritus Scientist, University of Agricultural Sciences, Bengaluru; Dr. P.M. Haldankar, Professor and Head, Dept. of Horticulture, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli and Shri. N. Narayana Bhat (Non-official Member), Karnataka participated in the meeting and the progress made under the research projects were discussed and recommendations were made.

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### **Institute Research Committee (IRC) Meeting:**

The 25<sup>th</sup> IRC meeting was held during 19-20 June 2012. Dr. M.G. Bhat, Director, DCR and Chairman of the IRC meeting welcomed the experts and scientists and presented overview of DCR activities including salient achievements of different research projects. There were technical sessions on 'Crop Improvement' chaired by Dr. B. Sathyanarayana Reddy, Professor, College of Horticulture, Mudigere; 'Crop Management' chaired by Dr. N. Yadukumar, Former Principal Scientist (Agronomy), DCR, Puttur; 'Crop Protection' chaired by Dr. V.V. Belavedi, Professor, Department of Agricultural Entomology, UAS, Bengaluru; 'Post Harvest Technology' chaired by Dr. M. Sivaswamy, Dean, Kelappaji College of Agril. Engineering and Technology, Kerala Agricultural University, Tavanur, Kerala and, 'Transfer of Technology', chaired by Dr. M.G. Bhat, Director, DCR. The scientists of the Directorate presented progress made under various projects and technical programme of all the projects was finalized.

### **Quinquennial Review Team (QRT) Meeting:**

The second meeting of QRT (2007-2012) was held under the Chairmanship of Dr. Kirti Singh, Former Chairman, Agricultural Scientists' Recruitment Board, New Delhi during 27-28 June 2012 at DCR, Puttur. Dr. M.G. Bhat, Director, DCR welcomed the dignitaries and briefed about the research activities of DCR and salient achievements. Dr. V.A. Parthasarathy, Former Director, Indian Institute of Spices Research,

Kozhikode; Dr. S.P. Singh, Former Director, PDBC (Presently NBAII), Bengaluru; Dr. V.B. Singh, Professor of Horticulture, SASARD, Nagaland University; Dr. S.I. Hanamashetti, Dean, KRC College of Horticulture, Arabhavi, Karnataka (Members of QRT) participated in the meeting. The QRT team reviewed the research activities of the Directorate for the period 2007-2012. This was followed by the presentation of research projects by the project leaders. The QRT visited nurseries, experimental plots and



laboratories both at Kemminje and Shanthigodu and offered comments. The QRT also visited a private nursery, progressive cashew farmers plots and cashew processing industry in Puttur. The Chairman stressed the need to upgrade DCR to the status of Institute. He suggested that the outcome of research should reach the farming community. The QRT earlier had a preliminary meeting with DDG (Hort.) at New Delhi on 8 May 2012 and had visited AICRP-Cashew Centre at CRS, Bhubaneswar and reviewed the work of Bhubaneswar and Jhargram Centres during 30-31 May 2012.

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## **TRANSFER OF TECHNOLOGY EFFORTS**

### **Training Programme**

A training programme on 'Softwood Grafting Technique in Cashew' was organized during 16-17 March 2012 in which 10 officials of Goa Plantation Development Corporation Limited were trained on latest aspects of softwood grafting and nursery management in cashew.

### **Consultancy / Advisory Visits**

A team of scientists or individual scientists participated as resource persons in the following cashew related programmes:

- Visited the cashew orchards established by tribal farmers with guidance from BAIF, Pune

(DRUVA in Gujarat) during 22-26 January 2012. Examined the situation and conditions of cashew orchards in the wadi located in Navsari, Dang and Valsad districts of South Gujarat and offered consultancy for the improvement of cashew orchards and the production.

- Geru mela organized at Horticultural Research Station (HRS), Ullal, D.K. district, Karnataka on 10 February 2012.
- Organized thematic campaigns on CSRB management in Goa at different locations viz., Moula-Batim, Tiswadi at Wadaval, Latam-Barcem, Bicholim. Barcem, Quepem, Shelap-

- Khurd, Valpoi, Sattari during 10-13 January 2012.
- State level cashew seminar at College of Horticulture, Kolar, Karnataka on 3 February 2012.
  - Krishi Mela organized by SKDRDP at Narimogaru village, Puttur taluk, Karnataka on 15 February 2012.
  - Seminar cum training programme on cashew organized by KVK and Academy for Sustainable Agriculture, Shimoga, Karnataka on 16 February 2012.
  - Organized thematic campaigns on CSRB management in the state of Maharashtra at Vengurle, Vaibhavwadi and Dodamarg during 17-18 February 2012.
  - Cashew day programme at ARS, Chintamani on 2 March 2012.
  - Horticulture industry meet - 2012 at IIHR, Bengaluru and also ICAR Industry Interface meeting at IIHR, Bengaluru during 6-7 March, 2012.

#### TV Programme / Radio Talk

- Recorded a TV talk on cashew scenario and improved cashew varieties - by Chandana Kannada channel of Doordarshan, Bengaluru on 20 January 2012.
- Recorded a radio talk on cashew varieties and ultra high density planting - at All India Radio, Mangalore on 8 March 2012.

#### Visitors

Several individual visitors and visitors in batches including farmers, students and officials to the Directorate were taken to various experimental plots, cashew nurseries, cashew museum and laboratories and were explained about cashew cultivation

practices and research findings of this Directorate.

#### Exhibition / Demonstrations

- Exhibition was organized by DCR on 29 February 2012 at Lions Seva Mandir, Manchi village, Buntwal taluk, D.K., Karnataka as part of cashew field day. More than 150 cashew farmers visited and had benefited from the exhibition held.
- The demonstration plots established in farmers' fields at Puttur, Sullia and Buntwal taluks of D.K. district of Karnataka with the financial support of NHM programme of DCCD, Kochi were monitored regularly by the scientists of this Directorate and technical advice was given as and when required.

#### Supply of Planting Material

About 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 Publications

Technical Bulletins published by DCR during January to June 2012 were:

- Training and Pruning in Cashew (Geru gidagala savaruvike mattu aakaara koduvike - in Kannada)
- Cashew Stem and Root Borer - A major pest of cashew (in Hindi).
- Fauna of Spiders in Cashew Ecosystem (in English).

## STAFF NEWS

#### Appointment

Shri. Eradasappa, E. - Joined as Scientist (Plant Breeding) on 11 April 2012 on transfer from Central Potato Research Station (CPRS), Patna, Bihar.

Dr. Mohana, G.S. - Joined as Senior Scientist (Genetics & Cytogenetics) on 24 April 2012.

#### Promotion

Smt. Reshma, K. (Stenographer Grade III) - Promoted as Personal Assistant w.e.f. 30 March 2012.

#### Transfer

Dr. (Mrs.) Rejani, R., Scientist (S&WCE) - Relieved of her duties on 31 May 2012 on her transfer to CRIDA, Hyderabad.

#### Ph.D. Award



Mr. Ramkesh Meena, Scientist (Horticulture-Fruit Science) was awarded Ph.D. degree in Horticulture by Maharana Pratap University of Agriculture and Technology, Udaipur,

Rajasthan for his thesis entitled 'Integrated nutrient management in rejuvenated guava orchard'. Directorate of Cashew Research wishes to congratulate Dr. Ramkesh Meena.

### Retirement

Sri. P. Subraya Gowda, Skilled Support Staff - Retired from the ICAR service on superannuation on 31 May 2012.

Dr. M. Gopalakrishna Bhat, Director - Retired from the ICAR service on superannuation on 30 June 2012.

### Farewell



Dr. M.G. Bhat has been the Director, Directorate of Cashew Research (Formerly National Research Centre for Cashew), Puttur from 1 April 2003 and was involved in overall development of research infrastructure facility and also as a

research manager involved in planning and formulating research strategies and programmes for cashew improvement. He was also the Project Coordinator, All India Coordinated Research Project on Cashew (AICRP - Cashew) since 2003 and actively engaged in coordinating the research programmes of cashew in the country. During his tenure, two more co-ordinating centres, one at Paria, Gujarat and other at Darisai in Jharkhand

and three cooperating centres one each at Goa, Barapani (Meghalaya) and Arabhavi (Karnataka) under AICRP - Cashew were included. He had played a crucial role in upgradation of National Research Centre for Cashew to the level of Directorate. Dr. Bhat was the General Chairman of Plantation Crops Symposium XVIII (PLACROSYM XVIII) which was held in DCR, Puttur during 10-13 December 2008 and Chairman of the Organizing Committee of Silver Jubilee Celebrations (1986-2011) of DCR held in DCR, Puttur during 23-24 December 2011. The staff members of DCR placed on record their appreciation to Dr. Bhat for his significant contributions made to Cashew Research System in India and wished him a fruitful superannuated life.

### ICAR Inter-Institutional Sports Meet (South Zone)

The following staff members participated and won the prizes in ICAR Inter- Institutional sports meet (South Zone) held at NAARM, Hyderabad from 27 February to 2 March 2012.

Shri. R. Muthuraju – I place (100 m Race).

Shri. P. Abdulla – I place (Carom).

Shri. B. Kushalappa – II place (800 m Race).

Shri. R. Muthuraju – III place (200 m Race).

Shri. R. Muthuraju, Dr. D. Kalaivanan, Shri. P. Vijay Achary and Shri. K. Shiva – III place (4 x 100 m Relay).

### Area, production and productivity of cashew in India during 2011-12

State	Area (ha)	Production (tonnes)	Productivity (kg/ha)
Kerala	83,000	73,000	948
Karnataka	1,21,000	60,000	517
Goa	58,000	25,000	455
Maharashtra	1,83,000	2,23,000	1282
Tamil Nadu	1,36,000	68,000	519
Andhra Pradesh	1,84,000	1,10,000	601
Odisha	1,58,000	97,000	683
West Bengal	20,000	5,000	500
Others	48,000	31,000	861
<b>Total</b>	<b>9,91,000</b>	<b>6,92,000</b>	<b>749</b>

Source: DCCD, Kochi

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