



# काजू समाचार

## CASHEW NEWS



भाकृअनुप - काजू अनुसंधान निदेशालय, पुन्नूर के अर्धवार्षिक वार्ता पत्र  
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### FROM THE DIRECTOR'S DESK

#### Soil and Water Conservation Techniques for Cashew Plantations

Land and water are two vital natural resources essential for existence of life. About 173 million ha land covering slightly half of the country is subjected to various types of land degradation problems like salinity, alkalinity, water logging, desertification etc. It has been reported that 6000 million tonnes of productive soil are lost every year from about 80 million ha cultivated land in India alone. Therefore, soil erosion either by water or wind is a serious concern. The areas like hilly terrain, arid region, ravines, torrents, sandy soils, salt affected lands etc. are more prone to soil erosion. The ongoing developmental activities and unscientific agricultural practices are further aggravating the problem. Deforestation and shifting cultivation is another cause of soil erosion. Soil erosion results in the loss of runoff water, plant nutrients and microflora, and thereby adversely affecting soil quality and crop productivity.

Soil and water conservation technology is an essential part of the package and practices of cashew cultivation followed in slopy areas where the top soil and surface runoff have to be conserved judiciously. Most of the cashew plantations in India are established on degraded slopes with poor fertility, where soil and water erosion is a common phenomenon. The largest area under cashew cultivation in India is along the steep hillocks of west coast region where the mean annual rainfall ranges from 3000 to 3500 mm with 80 per cent of it received during June-September.



A mean rainfall of around 67-415 mm is received during fruiting season of cashew (February-May). The water deficit is highest during March-May (112-183 mm). Cashew starts flowering after monsoon and soon after fruit set till maturity (January to May), there is a deficit of water. To mitigate this problem, making terraces around the plant and opening of catch pits are very useful. Before the onset of south west monsoon (May-June), terraces of 1.5 m radius should be made during the second year of planting and this should be widened up to 2 m during the third year. The basin area of cashew plants can be mulched either with green leaves, dry leaves or weeds soon after planting. Mulching with organic materials/residues reduces surface evaporation during rainfall deficit conditions and also regulates the soil temperature. Mulching the tree basins not only help in conservation of soil moisture but also prevents soil erosion.

Studies on *in-situ* soil and water conservation measures for cashew conducted at ICAR-Directorate of Cashew Research (DCR), Puttur, Karnataka, indicated that individual tree terracing with crescent bund is the best soil conservation measure in slopy lands. Terraces are prepared by removing soil from the elevated portion of slope and spreading on the lower side which forms a flat basin of 1.5 m to 2 m radius depending upon the age of the plant. Terraces may be crescent with inwardly sloping, so that the top soil which is washed off from the upper side due to rain water is deposited in the basin of the plant. A catch pit (200 cm long x 30 cm wide x 45 cm deep) across the slope at the peripheral end of the terrace is made for withholding water during pre-monsoon and post-monsoon in slopy areas. A small channel connecting catch pit sideways/water ways is made to drain out excess water during rainy season.

Among the various *in-situ* soil and water conservation measures tried, modified crescent bunds made at 2 m radius having a crescent shaped



**Modified crescent bund**

bund of 6 m length, 1 m width and 0.5 m height on the upstream of the plant (so that a trench of 6 m length and 50–75 cm deep will be formed while making the bund) or staggered trenches with coconut husk burial were found superior. Coconut husks buried in trenches of 1 m width, 0.5 m depth and 3.5 m length per plant opened across the slope between two rows of cashew helps in better soil and water conservation. Generally three to four layers of coconut husks are buried one above the other. The first layer is laid with the convex surface



**Coconut husk burial**

of the husk touching the ground. After spreading a layer of soil on the husks, the second layer of husks is laid in the same position. The last layer should be covered with soil upto 10 cm thickness. About 100 coconut husks are needed to bury in a trench of 3.5 m length.

Modified crescent bund or staggered trenches with coconut husk burial reduced the annual runoff (22.3 and 20.4% of the annual rainfall compared to 36.9% of the annual rainfall in control), soil loss (47 and 49% of control) and nutrient loss. Also it increased the yield of cashew (6.45 and 6.60 t/ha respectively compared to 4.88 t/ha in control for the first 5 harvests) and net profit from cashew orchard (40% more than control). In addition to this, the groundwater level in nearby wells and ponds also increased. Hence, barren lands even in steep slopes can be effectively utilized for cashew cultivation with proper soil and water conservation measures. Research priorities should be focused on quantification of soil loss, nutrient loss and runoff water in slopy lands and development of suitable soil and water conservation techniques in major cashew growing regions of India. Therefore, there is an urgent need for standardization and development of *in-situ* water harvesting in lined tanks and recycling with small pipes or micro tubes using gravity flow in hillocks of cashew growing areas during critical stages.

**(P. L. Saroj)**

Director

## FOCUS ON RESEARCH

### H-126: First Jumbo Nut Cashew Hybrid from ICAR-DCR

J.D. Adiga; G.S.Mohana; R.K. Meena; E. Eradasappa; M.G. Nayak; P.L. Saroj and M.G. Bhat  
ICAR - Directorate of Cashew Research, Puttur - 574 202, Karnataka

Under ICAR *ad-hoc* scheme on Network Programme on Hybridization in Cashew, large number of hybrids were generated at ICAR-DCR. The main objective of this scheme was to evolve bold nut cashew hybrids which fetch premium price in export market. The hybrids were generated by using cross combinations among the parents, NRCC Sel-2, Bhedasi and Bhuthnath-II and planted at 7m x 7m spacing in un-replicated manner for initial evaluation at ICAR-DCR Experimental Station, Shantigodu (Dakshnina Kannada district of Karnataka) in the year 2000. Among the hybrids generated from various cross combinations, five hybrids showed promising results.

The results obtained after 8 years of evaluation of these hybrids are given in Table 1. During evaluation, NRCC Sel-2 was also considered as check. Among different hybrids, hybrid H-126 (cross combination of NRCC Sel-2 x Bhedasi) has been identified as promising and found to be consistently yielding with an average nut yield of 5.76 kg/tree (over eight years of harvest). At 8<sup>th</sup> harvest, 8.5 kg nut/tree and over eight harvests cumulative yield of 46.10 kg nut/tree was recorded. The nut yield/tree of these hybrids were better over check (NRCC Sel-2). Moreover, the average nut yield of other hybrids was also good but the mean nut weight and shelling percentage was better in H-126 over other hybrids.

**Table 1. Performance of promising cashew hybrids under un-replicated trial**

Hybrid/parent	Cross combinations (kg/tree)	Yield at 8 <sup>th</sup> harvest (kg/tree)	Cum. yield of 8 harvests (kg/tree)	Av. yield of 8 harvests (g)	Mean nut wt. (g)	Mean kernel wt. (g)	Shelling (%)
H-43	NRCC Sel-2 x Bhuthnath-II	7.30	42.63	5.33	11.80	3.33	28.00
H-66	NRCC Sel-2 x Bhuthnath-II	8.00	42.61	5.33	10.30	2.90	28.15
H-68	NRCC Sel-2 x Bhuthnath-II	7.50	43.05	5.38	11.42	3.28	28.75
H-125	NRCC Sel-2 x Bhedasi	8.00	42.39	5.30	10.83	3.33	28.33
H-126	NRCC Sel-2 x Bhedasi	8.50	46.10	5.76	12.00	3.40	30.76
NRCC Sel-2 (Check)		1.97	25.14	3.14	9.2	2.63	28.60

Thereafter, based on better performance under un-replicated trial in the initial years of evaluation, these hybrids, along with three promising hybrids (H-1250, H-2452 and H-2473) identified from previous breeding trial, were clonally propagated through softwood grafting and planted at Kemminje campus in replicated trial at a spacing of 6m x 6m in 2006 for further evaluation with two local checks (NRCC Sel-2 and Bhaskara). Under replicated trial also, hybrid H-126 performed well with an average

nut yield of 3.01 kg/tree after 5<sup>th</sup> harvest followed by H-125 (2.74 kg/tree). At 5<sup>th</sup> harvest, the nut yield of H-126 was 5.96 kg/tree followed by H-125 (4.68 kg/tree), whereas, in all other hybrids the yield was less than 3 kg/tree. The yield of check varieties were further low under replicated trial. On cumulative basis and also on per hectare basis, the yield of H-126 was the highest (15.03 kg/tree and 1.65 t/ha respectively) among all hybrids and over check (Table 2).

**Table 2. Nut yield of promising hybrids under replicated trial**

Hybrid/ variety	First harvest (2011)	Second harvest (2012)	Third harvest (2013)	Fourth harvest (2014)	Fifth harvest (2015)	Average yield (kg/plant)	Cumulative yield of 5 harvests (kg/plant)	Yield in 5 <sup>th</sup> harvest (t/ha)
H-43	0.19	1.98	2.61	1.31	1.94	1.61	8.03	0.54
H-66	0.17	2.11	2.93	1.43	1.49	1.63	8.13	0.41
H-68	0.35	3.93	3.54	2.03	2.56	2.48	12.41	0.91
H-125	0.63	2.79	2.83	2.79	4.68	2.74	13.72	1.24
H-126	0.67	2.96	3.33	2.91	5.96	3.01	15.03	1.65
H-1250	0.17	1.88	3.24	1.70	2.37	1.87	9.36	0.66
H-2452	0.07	0.61	0.64	1.04	0.91	0.65	3.27	0.25
H-2473	0.05	1.57	2.85	1.86	0.96	1.46	7.29	0.27
NRCC Sel-2 (Check)	0.24	2.17	2.99	1.69	0.53	1.52	7.62	0.15
Bhaskara (Check)	0.37	3.35	2.76	2.72	1.49	2.14	10.69	0.41
CD (p=0.05)	NS	1.73	NS	1.42	1.75	-	-	-

With respect to sex ratio, nut characters and shelling percentage, variable response was observed. The nut weight of H-126 and H-125 was at par but the highest shelling percentage was recorded in H-1250 (34.5%). However, H-126 posses a special character of jumbo nut (nut weight of 11.5-12 g), with a high shelling percentage of 29.1 and kernel weight of 3.3 g which fits in to the kernel grade bigger than W150 (Table 3). So far, no released hybrid has recorded kernel grade above W 180. Because of the jumbo nuts, apart from

saving labour on picking, this hybrid can ensure higher price for the farmers due to its bigger nut size. From the processors point of view, in addition to saving labour on shelling and peeling during processing coupled with higher nut weight, this hybrid produces kernels with higher grade (kernel grade higher than W 180), which fetches premium price in the market. The added advantage is the uniformity in nut size, wherein, more than 95 per cent nuts fall in to jumbo nut category.

**Table 3. Yield attributing characters of promising hybrids under replicated trial**

Hybrid/variety	Sex ratio	Nut thickness (cm)	Nut width (cm)	Nut length (cm)	Nut weight (g)	Shelling (%)
H-43	0.24	1.84	2.9	3.98	10.05	26.05
H-66	0.20	1.76	2.64	3.59	9.46	29.7
H-68	0.24	1.83	2.70	3.66	10.35	27.93
H-125	0.37	2.57	2.85	3.65	12.06	29.13
H-126	0.21	2.41	2.73	3.66	12.00	29.1
H-1250	0.30	2.08	2.34	3.02	6.99	34.5
H-2452	0.51	1.68	2.28	3.06	5.07	30.2
H-2473	0.09	1.85	2.8	3.73	9.15	31.95
NRCC Sel-2 (Check)	0.06	2.08	2.61	3.33	7.76	32.57
Bhaskara (Check)	0.24	1.73	2.33	3.19	5.91	33.61
CD (p=0.05)	-	0.11	0.13	0.15	0.4	2.39



This hybrid recorded 91.50 per cent higher nut weight and 79.50 per cent higher kernel weight compared to popular variety Bhaskara. As compared to bold nut variety NRCC Sel-2, H-126

recorded 46 per cent higher nut weight and 36 per cent higher kernel weight (Table 4). The hybrid also recorded higher values for nut parameters like nut thickness and nut width.

**Table 4. Per cent increase/decrease in nut & kernel weight of promising hybrids over check (Bhaskara and NRCC Sel-2)**

Hybrid/variety	Nut weight (g) over Bhaskara	Nut weight (g) over NRCC Sel-2	Kernel weight (g) over Bhaskara	Kernel weight (g) over NRCC Sel-2
H-43	70.05	29.51	27.62	-3.50
H-66	60.06	21.91	38.57	4.67
H-68	75.12	33.37	47.60	11.51
H-125	104.06	55.41	71.42	29.49
H-126	91.53	45.87	79.52	35.61
H-1250	18.27	-9.92	10.95	-16.18
H-2452	-14.21	-34.66	-24.76	-43.16
H-2473	54.82	17.91	44.29	8.99
NRCC Sel-2 (Check)	31.30	-	32.38	-
Bhaskara (Check)	-	-23.84	-	-24.46



Cluster of H-126



Fruiting bunch of H-126



Kernels of H-126

After a systematic evaluation over 8 years, it was observed that H-126 is a good hybrid in terms of jumbo nut size, higher kernel grade, consistency in average annual nut yield over five harvests compared to local checks (Bhaskara and NRCC Sel-2). At fifth harvest, 1.65 t/ha yield was recorded which is higher and more than double compared to average yield of

cashew in India (0.78 t/ha). Thus, the hybrid-126 can be recommended as moderate yielding, jumbo nut size and export oriented variety for cultivation in West Coast region of the country. The hybrid can be identified by its cluster bearing habit, jumbo nut size and big sized orange red colour apple.

## PROGRAMMES ORGANIZED

### DDG (Hort. Sci.), ICAR laid the Foundation Stone for Silver Jubilee Building

Dr. N.K. Krishna Kumar, Deputy Director General (Hort. Sci.), ICAR laid the foundation stone for

silver jubilee building at ICAR-DCR, Puttur on 24 January 2015. While speaking on the occasion, Dr. Krishna Kumar expressed the need of Silver Jubilee Building at ICAR-DCR to provide new state-of-the-

art facilities. He said that the facilities will also cater for additional equipment and would definitely contribute to the overall growth and development of cashew research. He appreciated the efforts of Dr. S. Ayyappan, Secretary, Department of Agriculture Research and Education (DARE) and Director General, ICAR in sanctioning the silver jubilee building to this Directorate. He highlighted the importance of horticulture sector in food



**Dr. N.K. Krishna Kumar, DDG (Hort. Sci.), ICAR laying foundation stone of silver jubilee building**

security and said that there is an increasing trend in domestic consumption of cashew and growing processing capacities in African countries which may hamper the availability of raw cashew nuts in future. He stressed the need for increasing the productivity of cashew at national level.

Dr. M.G. Bhat, Former Director, ICAR-DCR appreciated the efforts of ICAR in developing this Directorate. Dr. Dinakara Adiga, Senior Scientist (Horticulture), ICAR-DCR briefed about the upcoming building. Scientists from neighbouring ICAR institutes were also present on the occasion. Earlier, Prof. P.L. Saroj, Director, ICAR-DCR welcomed the audience including progressive cashew farmers and outlined the role of ICAR-DCR in cashew sector.

### **Cashew Day and Interaction Meet with Tribal Farmers**

The ICAR-DCR organized Annual Cashew Day and Interaction meet with Tribal Farmers under ICAR Tribal Sub-Plan (TSP) on 20 February 2015. More than 160 cashew farmers participated besides nursery men, representatives of KVK, development

departments, NGOs and scientists. The Hon'ble Member of Parliament, Dakshina Kannada district, Shri. Nalin Kumar Kateel was the Chief Guest and Dr. C. Vasudevappa, Vice Chancellor, University of Agricultural and Horticultural Sciences, Shivamogga, Karnataka was the Guest of Honour. Prof. P.L. Saroj, Director, ICAR-DCR presided over the meeting. Dr. M.G. Nayak, Principal Scientist (Horticulture), ICAR-DCR welcomed the dignitaries and participants and gave an account of efforts being made under the TSP including NEH region. Shri. Nalin Kumar Kateel, stressed upon the need of elevating the status of cashew cultivation and better income from cashew farming. He appreciated the research efforts made by ICAR-DCR in developing improved technologies for cashew production and called for wider outreach of the technologies in collaboration with development departments.



**Shri. Nalin Kumar Kateel, Hon'ble Member of Parliament, D.K. District, Karnataka inaugurating the meet**

suggested the farmers to adopt cashew production technologies developed by this Directorate for obtaining better income. He also stressed that only high yielding varieties suitable for west coast region like Bhaskara, NRCC Sel-2, VRI-3, Ullal-3, Madakkathara-2 etc. should be planted. The planting material must be purchased from accredited nurseries. This was followed by a farmer-scientist interaction session.

### **29<sup>th</sup> Foundation Day of ICAR-DCR and Farmers Meet**

The ICAR-DCR celebrated its foundation day on 18 June 2015. Cashew Farmers Meet - 2015 was organized to mark the occasion in which more than 150 cashew farmers participated besides

nursery men, representatives of KVK, development departments, NGOs and scientists. The Chief Guest, Dr. S.D. Shikhamany, Former Vice Chancellor, Dr. YSR Horticultural University, Venkataramanagudem, Andhra Pradesh extended his best wishes to the



**Dr. S.D. Shikhamany, Former Vice Chancellor, Dr. YSR Horticultural University, Andhra Pradesh inaugurating the programme**

ICAR-DCR on its 29<sup>th</sup> Foundation Day Celebrations and complimented ICAR-DCR for making impressive progress in the cashew production. He informed that three technologies viz., softwood grafting, high density planting and Bhaskara variety have made significant impact in increasing cashew yield several folds. He advised the farmers to follow suitable technologies.

In his remarks, Dr. Sanjay S. Bijjur, Chief Conservator of Forests, Mangaluru Circle said that there is a need to give new direction to the cashew in view of the increasing demand for cashew kernel. Prof. P.L. Saroj, Director, ICAR-

DCR briefed about the achievements and various activities of ICAR-DCR. He stressed the need of hour is to work collectively to address the various issues and challenges to promote the growth of cashew sector. Earlier, Dr. M.G. Nayak, Principal Scientist (Horticulture) welcomed the dignitaries and participants. Three cashew farmers were honoured for their innovative role in enhancing the productivity of cashew. On this occasion, various competitions like Rangoli, Essay writing, Drawing, Music competition, Musical chairs and Quiz were organized for the staff and their family members and prizes were given to the winners. Catalogue-V on Minimum Descriptors of Cashew Germplasm was released. This was followed by a farmer -



**Felicitation to innovative farmer**

scientist interaction session. Dr. T.N. Raviprasad, Principal Scientist (Agril. Entomology) proposed vote of thanks.

## बैठक / MEETINGS

### राजभाषा हिन्दी कार्यान्वयन

इस छः माही में निदेशालय में राजभाषा कार्यान्वयन समिति की दो तिमाही बैठकें हुईं। इसके अतिरिक्त पुत्तूर नगर राजभाषा कार्यान्वयन समिति (नराकास) की एक अर्धवार्षिक बैठक भी आयोजित हुई।

तिमाही बैठकों में कार्यालय में हो रही हिन्दी गतिविधियों के बारे में चर्चा किया गया। गृह मंत्रालय, भारत सरकार द्वारा दिये गये वार्षिक कार्यक्रम के अनुसार लक्ष्य प्राप्ति हेतु जरूरी कदम उठाने के बारे में भी चर्चा किया गया। कार्यालयीन कार्यों को हिन्दी में करने के लिए और हिन्दी कार्यान्वयन को बढ़ावा देने के लिए उचित कदम उठाने के बारे में निर्णय लिया गया।

29 जनवरी को पुत्तूर नराकास की 27 वीं अर्धवार्षिक बैठक

का आयोजन हुआ। बैठक में पुत्तूर नगर के विभिन्न केंद्र सरकारी कार्यालयों के प्रतिनिधि भाग लिए। बैठक में इन कार्यालयों में



**अर्धवार्षिक बैठक प्रगति में**



हो रही हिन्दी के काम-काज के बारे में चर्चा हुई और जरूरी दिशा-निर्देश भी दिए गए। इस बैठक के अवसर पर केनरा बैंक, ऑचल कार्यालय, मंगलूरु से आए राजभाषा अधिकारी श्री मनोज उपस्थित थे। उन्होंने सदस्यों को अर्ध वार्षिक रिपोर्ट भरने के बारे में अवगत किया।

इस निदेशालय और नराकास के सदस्य कार्यालयों के कर्मचारियों के लिए हिन्दी कार्यशालाओं का भी आयोजन किया गया। कार्यशाला में दैनिक काम-काज में उपयोग होनेवाले पत्र लेखन, मसौदा लेखन, नोट लिखना आदि के बारे में प्रशिक्षण दिया गया। कार्यशाला में 45 कर्मचारी भाग लिए।

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

The 42<sup>nd</sup> meeting of the IMC was held on 17 March 2015 under the Chairmanship of Prof. P.L. Saroj, Director, ICAR-DCR. The Chairman informed the members about research and achievements of the Directorate. Various administrative and financial matters were discussed and finalized.

Dr. Ramanathan, Principal Scientist, ICAR-CTCRI, Thiruvananthapuram; Ms. Rekha, Senior Assistant Director (Hort.), Directorate of Horticulture, Govt. of Karnataka, Bengaluru; Shri. T.D.S. Prakash, Finance & Accounts Officer, ICAR-CPCRI, Kasaragod; Dr. T.N. Raviprasad, Principal Scientist, ICAR-DCR; Dr. P.S. Bhat, Principal Scientist, ICAR-DCR; Dr. T.R. Rupa, Principal Scientist, ICAR-DCR; Dr. Mohana, G.S., AF & AO In-charge and Shri. K.M. Lingaraja, Administrative Officer In-charge, ICAR-DCR attended the meeting.

### **Institute Joint Staff Council (IJSC) Meeting**

The IJSC met twice on 30 March 2015 and 30 June 2015 at quarterly intervals during the period under report to discuss about staff welfare activities. All issues related to staff welfare were addressed.

## **TRIBAL SUB-PLAN**

### **Area Expansion under Tribal Sub-Plan (TSP)**

Twenty five new Frontline Demonstration plots established under TSP programme in tribal farmer fields of Dakshina Kannada district, Karnataka. The plots were monitored regularly by the team of Scientists of this Directorate during the period and technical advice was given as and when required.



**Area expansion under TSP**

## **TRAININGS ORGANIZED**

### **Training on Cashew Production Technology**

A three days training programme on Cashew Production Technology was organized at ICAR-

DCR during 7-9 January 2015 for the officials of Bharatiya Agro Industries Foundation (BAIF), Pune in which eleven participants from Maharashtra, Gujarat and Madhya Pradesh attended. Various aspects of cashew improvement, production, protection, processing and transfer of technology efforts were explained to the participants during this programme.

### **Training on Cashewnut Processing**

A three days training programme on Cashewnut Processing was organized at ICAR-DCR during 26-28 March 2015. The major focus of the training was on grading of raw cashewnuts, maintenance of processing machineries and preparation of value added products from cashewnut and apple.



**Group photo of the participants with resource persons**





**Group photo of the participants with resource persons**

Fifteen women from Self Help Group Saphalam Cashew Processors Society under Kudumbashree, Kasaragod attended the training programme.

### **National Training Programme on Advances in Cashew Production Technology**

National training programme on Advances in Cashew Production Technology was conducted during 21-23 May 2015 at ICAR-DCR, Directorate of Cashewnut and Cocoa Development (DCCD), Kochi sponsored this training. Inaugurating the



**A view of the inaugural programme**

programme, Dr. S.B. Dandin, Co-Ordinator, Bioversity International and former Vice Chancellor, University of Horticultural Sciences, Bagalkot highlighted the scenario of cashew at national and global level and various technologies available for better nut productivity. Shri. N. Nagaraj, IFS, Managing Director, Karnataka Cashew Development Corporation stressed the need for increasing domestic raw cashewnut production, for which ICAR-DCR has appropriate technologies. Prof. P.L. Saroj, Director, ICAR-DCR, in his address, highlighted the research accomplishments of the Directorate and efforts being made to implement various research and development programmes in cashew. Shri. Venkatesh N. Hubballi, Director, DCCD, Kochi expressed that the training programme was organized with the aim to build the capacity of the learners on advanced cashew production technologies keeping on the role of cashew sector to improve productivity and profitability of cashew farmers.

Earlier, Dr. M.G. Nayak, Principal Scientist (Horticulture) and Course Co-ordinator welcomed the dignitaries and participants. A total of 50 participants from Development Departments, SAUs, Cashew and Forest Development Corporations and Horticulture Missions of Odisha, Andhra Pradesh, Tamil Nadu, Kerala, Goa and Karnataka participated in this training programme. Subject matter specialists delivered lectures on various aspects related to advances in cashew production technologies. On this occasion, three publications viz., Catalogue on Minimum Descriptors of Cashew Germplasm, Training manual on Advances in Cashew Production Technology and e-manual on Advances in Cashew Production Technology were released. Dr. Sajeev, M.V. Scientist (Agril. Extension) proposed vote of thanks.

## **TRANSFER OF TECHNOLOGY**

### **Exhibitions / Demonstrations**

- 10 January 2015 - Krishi Mela organized at ICAR-CPCRI Regional Station, Vittal, Karnataka. This Directorate put up stall to display various cashew production and processing technologies to the farmers.
- 24-26 January 2015 - Krishi Yantra Mela organized at Vivekananda Engineering College, Puttur,

Karnataka by The Central Arecanut and Cocoa Marketing and Processing Co-operative Limited (CAMPCO). On-farm Cashewnut Processing was highlighted in this stall wherein machineries required for on-farm processing were exhibited.

- 14-15 March 2015 - Kaju Summit organized at TMA Pai International Convention Centre, Mangaluru by Karnataka Cashew Manufacturers

Association. Cashew apple processing was highlighted in this stall wherein products made out of cashew apple were exhibited.

### Establishment of Demonstration Plots

The demonstration plots established in farmers' fields at Puttur, Sullia and Bantwal taluks of Dakshina Kannada district of Karnataka with the financial support of National Horticulture Mission programme of DCCD, Kochi were monitored



**Monitoring of demonstration plot**

regularly by the Scientists of this Directorate during the period and technical advice was given as and when required.

### Advisory Visits / Consultancy

The scientists of this Directorate were requested

### Visitors

Visitors Category	Organization	No. of Participants	Date of Visit
Officials	BAIF, Pune, Maharashtra	11	7 January 2015
Students	Govt. First Grade Degree College, Uppinangady, Karnataka	60	31 January 2015
Farmers, Officials	Various districts, Karnataka	150	20 February 2015
Women entrepreneurs	Kudumbashree, Kasaragod, Kerala	15	26 March 2015
Tribal farmers	Puttur, Karnataka	25	27 March 2015
Farmers	Dept. of Horticulture, Shikaripura, Karnataka	30	21 April 2015
Farmers	Dept. of Horticulture, Harihara, Karnataka	20	23 April 2015
Farmers	Dept. of Horticulture, Thirthahalli, Karnataka	30	13 May 2015
Officials	Various organizations from different states of Kerala, Karnataka, Tamil Nadu, Andhra Pradesh, Goa and Maharashtra	36	21 May 2015
Farmers, Officials	Karnataka	100	18 June 2015

for technical advice/lectures on various aspects of cashew production by different organizations. A team of scientists provided consultancy/lectures as and when requested and also participated as resource persons in various cashew related programmes.

### Exposure Visit to ICAR-DCR

Several individual visitors and visitors in batches including farmers, students and officials to the Directorate were taken to various experimental plots,



**Farmers visiting experimental field**

cashew nurseries, cashew museum and laboratories and were appraised of the achievements and technologies developed by ICAR-DCR.

## Visit of Dignitaries

Name	Address	Date of Visit
Dr. G. Ravindra Chary	Project Coordinator In-charge, AICRP on Dryland Agriculture, ICAR - Central Research Institute for Dryland Agriculture, Hyderabad, Telangana	20 January 2015
Dr. N.K. Krishna Kumar	Deputy Director General (Hort. Sci.), ICAR, New Delhi	24 January 2015
Dr. Brahma Singh	Former Director, Defense Research Development Organization, New Delhi	12 February 2015
Dr. Subhash, N.	Professor and Head, Plant Tissue Culture, Anand Agricultural University, Gujarat	12 February 2015
Dr. V.S. Korikanthimath	Former Director, ICAR - Central Coastal Agricultural Research Institute, Goa	12 February 2015
Shri. Nalin Kumar Kateel	Hon'ble Member of Parliament, Dakshina Kannada district, Karnataka	12 February 2015
Dr. S.B. Dandin	Former Vice Chancellor, University of Horticultural Sciences, Bagalkot, Karnataka	21 May 2015
Shri. Venkatesh N. Hubballi	Director, Directorate of Cashewnut and Cocoa Development, Kochi, Kerala	21 May 2015
Shri. N. Nagaraj, IFS	Managing Director, Karnataka Cashew Development Corporation, Bengaluru	21 May 2015
Dr. S.D. Shikhamany	Former Vice Chancellor, Dr. YSR Horticultural University, Venkataramanagudem, Andhra Pradesh	18 June 2015
Shri. Sanjay Bijjur	Chief Conservator of Forests, Mangaluru Circle, Karnataka	18 June 2015

## Radio Talks

Name	Topic	Recorded/Broadcast
Mohana, G.S.	Uses of internet for agriculture information and development - All India Radio, Mangaluru	5 February 2015
M.G. Nayak	Technologies for yield enhancement in cashew - All India Radio, Mangaluru	16 May 2015

## Supply of Planting Material

Around 1,00,000 cashew grafts of high yielding and recommended varieties were produced and supplied to the farmers and developmental agencies.



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## Technical Publications

- Minimum Descriptors of Cashew Germplasm Accessions: Catalogue-IV by Nayak, M.G., Mohana, G.S., Bhat, P.S., Saroj, P.L. and K.R.M. Swamy. ICAR-Directorate of Cashew Research, Puttur, pp. 32.
- Minimum Descriptors of Cashew Germplasm Accessions: Catalogue-V by Nayak, M.G., Mohana, G.S., Bhat, P.S., Saroj, P.L., K.R.M. Swamy and M.G. Bhat. ICAR-Directorate of Cashew Research, Puttur, pp. 44.

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## STAFF NEWS

### Appointment / Transfer

- Ms. Janani, P. - Joined as Scientist (Spices, Plantation, Medicinal and Aromatic Plants) on 10 April 2015.
- Dr. M. Loganathan – Joined as Senior Scientist (Plant Pathology) on 19 May 2015 on his transfer from ICAR- Indian Institute of Vegetable Research, Varanasi.
- Dr. P. Shivarama Bhat, Principal Scientist (Agril. Entomology) - Relieved of his duties on 30 May 2015 on his transfer to ICAR-Indian Institute of Horticultural Research, Bengaluru.

### Financial Upgradation under MACPS

The following Skilled Support Staff have been given financial upgradation under Modified Assured Career Progression Scheme (MACPS)

- Shri. K. Annu, Shri. V. Sundara, Shri. C.H. Hariya Naik, Shri. K. Gopalakrishna

### Awards / Honours / Recognitions

- Prof. P.L. Saroj, Director - Nominated as Executive Councillor, Horticulture Society of India for second consecutive term.

- Dr. J. Dinakara Adiga, Senior Scientist (Fruit Science-Horticulture) – Awarded with Prof. P.B. Patil Memorial Award in Fruit Sciences for 2015-16 by Garden Glory Human Empowerment Society, Jammu.
- Mrs. Vasanthi. P., Research Scholar, ICAR-DCR - Awarded Ph.D. degree in Applied Zoology by Mangalore University, Mangaluru, Karnataka. Mrs. Vasanthi has worked with Dr. T.N. Raviprasad, Principal Scientist (Agril. Entomology), ICAR-DCR on Studies on biology and population dynamics of cashew stem and root borers with special reference to management approaches for *Plocaederus* spp.

### ICAR Inter Zonal Sports Meet

- Shri. P. Abdulla, Chief Technical Officer won II prize in Carom in ICAR Inter Zonal Sports Meet held at ICAR-NDRI, Karnal during 11-14 March 2015.



### ICAR Zonal Tournament (Southern Zone)

- Shri. Bojappa Gowda, Technical Officer won III prize in Discus Throw in ICAR South Zone Sports Meet held at ICAR-CIFT, Kochi during 25-29 May 2015.



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