

**ALL INDIA COORDINATED RESEARCH PROJECT
ON CASHEW**

**PROCEEDINGS OF THE ANNUAL GROUP MEETING
OF
SCIENTISTS OF AICRP-CASHEW**

21 - 23rd DECEMBER 2017

**Venue : ICAR - Directorate of Cashew Research
Puttur, DK, Karnataka**



**ICAR - DIRECTORATE OF CASHEW RESEARCH
PUTTUR-574 202, D.K., KARNATAKA**

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ALL INDIA COORDINATED RESEARCH PROJECT ON CASHEW

ICAR - DIRECTORATE OF CASHEW RESEARCH

PUTTUR-574 202, D.K., KARNATAKA

ACKNOWLEDGEMENTS

The Annual Group Meeting of All India Coordinated Research Project on Cashew was held at this Directorate from 21st - 23rd December 2017. AICRP research workers, scientific staff of DCR and progressive farmers have participated in this meeting.

I express my deep sense of gratitude to Dr. A.K. Singh, Deputy Director General (Hort.), ICAR for his kind advice in organizing this Annual Group Meeting of Scientists of AICRP on Cashew-2017. I place on record my thanks to the authorities of the ICAR, New Delhi for their support in conducting meeting.

I am thankful to Prof. K.V. Peter, Former Vice Chancellor, KAU for inaugurating the AGM Meeting 2017 and also for chairing the Crop Management Session. Dr. M.G. Bhat, Former Director, ICAR-DCR, Puttur for chairing the Crop Improvement and Dr. Abraham Verghese, Former Director, NBAIR, Bangalore for chairing the Crop Protection and Interactive Session. My thanks are also due to all the rapporteurs of different sessions.

I thank the members of various committees who have worked tirelessly for the successful conduct of this Annual Group Meeting, and all the scientific colleagues from the Coordinating Centers and Directorate of Cashew Research for their participation and cooperation. My thanks are also due to Dr. Mohana G.S., Scientist-in-charge (PC Cell) & Smt. Reshma K, PA and all DCR staff for the support extended in organizing this group meeting.

Puttur
Date : 03.01.2018

[M.G. NAYAK]
Acting Director &
Project Coordinator (Cashew)

PROGRAMME DETAILS

Venue: ICAR – Directorate of Cashew Research, Puttur

Date: 21-23rd December 2017

21.12.2017

INAUGURAL SESSION

10.00 AM TO 11.00 AM

I.C.A.R. Song

Welcome

: Dr. M.G. Nayak
Director (Acting), ICAR-DCR, Puttur

Lighting of the Inaugural Lamp

: By dignitaries on the dais

Project Coordinator's Report

: Dr. M.G. Nayak, Director (Acting), ICAR-DCR, Puttur

Inaugural Address

: Dr. K.V. Peter
Former Vice Chancellor, KAU

Presidential Address

: Dr. P. Chowdappa, Director, ICAR-CPCRI, Kasaragod

Address by Guest of Honour

: Dr. M.G. Bhat, Former Director, ICAR-DCR, Puttur

Vote of Thanks

: Dr. Mohana G.S., Sr. Scientist (Gen. & Cytogen.) & SIC (PC Cell), ICAR-DCR, Puttur

TECHNICAL SESSIONS

11.00 AM

Presentation of Action Taken Report

: Dr. Mohana G.S., Sr. Scientist (Gen. & Cytogen.) & SIC (PC Cell), ICAR-DCR, Puttur

TECHNICAL SESSION-I

: CROP IMPROVEMENT

Chairman

: Dr. M.G. Bhat, Former Director, ICAR-DCR, Puttur

Rapporteurs

: 1. Dr. Umamaheshwara Rao, Scientist (Hort.), CRS, Bapatla
2. Dr. Siddanna Savadi, Scientist (Biotech), ICAR-DCR, Puttur

Presentation of Reports on Crop Improvement by Scientists of AICRP-Cashew

22.12.2017 (9.00 AM)

TECHNICAL SESSION II

: CROP MANAGEMENT

Chairman

: Dr. K.V. Peter
Former Vice Chancellor, KAU

Rapporteurs

: 1. Dr. Mini Poduval, Scientist (Hort.), RRS, Jhargram
2. Dr. Preethi P., Scientist (Fruit Sci.), ICAR-DCR, Puttur

Presentation of Reports on Crop Management by Scientists of AICRP Cashew

2.00 PM

TECHNICAL SESSION III

Chairman

: CROP PROTECTION

: Dr. Abraham Verghese, Former Director, NBAll, Bangalore

Rapporteurs

: 1. Dr. Jaya Prabhavathi, Scientist (Ento), RRS, Vridhachalam

: 2. Dr. K. Vanitha, Scientist (Ag. Ento.), ICAR-DCR

Presentation of Reports on Crop Protection by Scientists of AICRP-Cashew

23.12.2017 (9.30 AM)

TECHNICAL SESSION-IV

Interaction between Development Departments & Research Centres

Chairman

: Dr. Abraham Verghese, Former Director, NBAll, Bangalore

Rapporteurs

: 1. Dr. M.S. Paikra, Scientist (Hort.), SGCARS, Jagdalpur

2. Dr. N. Aswathanarayana Reddy, Asst. Prof. (Ento), HREC, Hogalagere

Presentations by participants of various development departments

11.00 AM – 1.30 PM

PLENARY SESSION

Chairman

: Dr. Abraham Verghese, Former Director, NBAll, Bangalore

Co- chairman

: Dr. M.G. Nayak, Acting Director, ICAR-DCR, Puttur

Rapporteurs

: 1. Dr. M.S. Paikra, Scientist (Hort.), SGCARS, Jagdalpur

2. Dr. N. Aswathanarayana Reddy, Asst. Prof. (Ento), HREC, Hogalagere

Vote of Thanks

: Dr. Mohana G.S., Sr. Scientist (Gen. & Cytogen.) & SIC (PC Cell), ICAR-DCR, Puttur

INAUGURAL ADDRESS

Dr. K.V. Peter

Former Vice Chancellor, KAU, Kerala

Dr. P. Chowdappa, Director, CPCRI, Kasaragod, Dr.M.G. Bhat, Former Director of DCR Puttur, Dr. M.G. Nayak, Director (Acting) and Project Coordinator (AICRP on Cashew) and Staff of DCR, Puttur, distinguished invitees and delegates, scientists from different centres of AICRP-Cashew, media persons, ladies & gentlemen.

I am happy to be here on the occasion of Annual Group Meeting of AICRP on Cashew at Directorate of Cashew Research, Puttur. I am very happy to see the result oriented research and development activities going on at this Directorate. The DCR, being the nodal agency for cashew research in the country, has been guiding the research programmes going on in the Coordinating Centres of Cashew spread in the cashew growing states of the country. The research efforts have resulted in releasing 43 high yielding cashew varieties and technologies which in turn have helped for enhancing raw nut production in the country and good ensuring returns to the farmers.

The Indian Council of Agricultural Research is giving more importance in increasing production and productivity of horticultural crops including cashew as it is an important foreign exchange earning crop. Over the past 10 – 15 years rapid progress have been made in horticulture production, however, there is a considerable prospect to enhance the production in case of cashew keeping in view of the huge demand by processing sector. Further, cashew being a nutritious nut can contribute substantially in ensuring nutritional security. Development of cashew apple based products is the need of the hour as million tons of cashew apples are wasted every year. Efforts are being made by our scientists to develop suitable acceptable products from cashew apple.

India is still the country maintaining its supremacy in international trade in cashew. India was leading in cashew production, processing and international trade till recently but its productivity is less than 800 kg/ha compared to African or cashew growing countries in Asia which is really a matter of concern. The countries like Vietnam, Ivory Coast and Tanzania are giving stiff competition to India in this Sector. In the area of production and productivity of cashew, Vietnam has made exceptional progress in raw nut production. I learnt that of late cashew producing countries are also establishing processing units and hence India is gradually facing shortage of raw nuts. Our domestic requirement of raw nuts for processing at present is about 15-20 lakh tones but the production is only 7-8 lakh tones. The demand is growing every year and we should be prepared to fulfil the huge requirement in a shorter period as import of raw nuts is dwindling and may stop after a few years. Further, the quality of imported nuts is poor compared to Indian origin nuts. Hence we need to gear up for increasing production and productivity to retain our supremacy in international trade. I hope that implementing high density planting system and by following recommended package of practices we can become self-sufficient to meet the growing demand for raw nuts by our processing industry.

It is necessary to concentrate on developing more hybrid varieties to overcome the shortage of raw nut in coming years. Developing dwarf and high yielding cashew varieties suitable for high density and ultra high density planting system is to be looked into. There is huge demand for organic cashew in international market as the customers abroad are very health conscious people. We should give adequate impetus in control of Tea Mosquito Bug (TMB) and Cashew Stem and Root Borer (CSRB) the two major pests affecting cashew plant as they are affecting the production of raw cashew nuts. Genetic mapping to identify the linkages related to biotic and abiotic stress needs immediate attention. To overcome the pest menace, we should concentrate our efforts in developing pest resistant varieties, biocontrol methods or pheromone technology which can boost productivity.

A large number of cashew germplasm i.e. 539 in our National Cashew Field Gene Bank and 1710 in Regional Cashew Field Gene Banks has been conserved. It will be possible to develop suitable cashew varieties from this genetic stock which will change the production scenario in future. Our research priorities should be streamlined to address regional short falls by establishing necessary collaboration with advanced laboratories and development agencies. The schemes and programmes under NHM and DCCD will also support the production of quality planting materials, after care activities and area expansion. Accreditation of Cashew Nurseries is a must for a perennial crop like cashew. There is a huge demand for quality planting material from farmers and development agencies. The nurseries in the Govt. Sector should take the lead in generating quality planting materials as farmers are looking at us for genuine quality planting material. The activity will also help to generate revenue to the organization which is also mandatory for ICAR & SAU's. Production and supply of quality planting material be given utmost importance by all AICRP Cashew Centres. When the country is looking for doubling the farmer's income, the crop is a right choice which has minimum pest and diseases, dry land crop with less usage of irrigation and power, low requirement of inputs and labour. Farm level processing, utilization of cashew apple for development of acceptable and marketable products, market research, establishment of cashew farmers clusters and co-operatives need to be looked into and encouraged. The AICRP has a location specific approach and is being evaluated on an annual basis, so that those problems could get more attention. I hope that the technical sessions will help in accurately outlining the work schedule for crop improvement, crop management and crop protection as well as PHT activities. I am confident that this Annual Group Meeting of AICRP-Cashew will come up with good technical programmes through detailed discussions for the benefit of cashew farmers. I take this opportunity to express my thanks to the Director, DCR for inviting me and giving me an opportunity to inaugurate this Annual Group Meeting of AICRP on Cashew.

Thank you, Jai Hind.

PRESIDENTIAL ADDRESS

Dr. P. Chowdappa

Director, ICAR-CPCRI, Kasaragod

Respected Dr. K. V. Peter, Hon'ble former Vice-Chancellor of Kerala Agricultural University and the Chief Guest of the function, the guest of honour for today's function, Dr. M.G. Bhat, Former Director, ICAR-DCR, Dr. M.G. Nayak, Director (Acting) and Project Coordinator (AICRP on Cashew), distinguished delegates; scientists from ICAR-DCR Puttur and AICRP-Cashew; invitees; media persons; ladies & gentlemen,

In India, cashew was introduced by Portuguese travelers in 16th century for afforestation of degraded lands in coastal region and soil conservation but now it has become a foreign exchange earning commercial horticulture crop. India is the first country to initiate cashew research in the 1950s and also exploited international trade of cashew kernels in the early part of 20th century. As you may be aware, systematic research was started in 1970 at Central Plantation Crops Research Institute (CPCRI) Kasaragod (Kerala) and the All India Coordinated Spices and Cashew nut Improvement Project in 1971. Research was mainly concentrated on collection, conservation of germplasm, development of high yielding varieties, standardization of agrotechniques, plant protection measures and standardization of propagation techniques. Generation of vegetatively propagated planting material was an important task to enhance production and productivity of cashew.

Cashew research gained momentum with the establishment of National Research Centre for Cashew (NRCC) at Puttur and research on various aspects of cultivation was intensified. This Research Centre was upgraded as ICAR-Directorate of Cashew Research (DCR) by ICAR in 2009. Being the nodal agency for cashew research in the country and also the headquarters of AICRP on Cashew, this Directorate is responsible to coordinate research and validation of technologies through AICRP on Cashew. Location specific research programmes on cashew are going on in 14 coordinating centres under the SAU's spread in different cashew growing states of the country.

I am told that all the centres of AICRP on Cashew have Regional Cashew Field Gene Banks (RCFGBs) wherein a total of 1710 germplasm collections are being maintained and their performance is being evaluated. Efforts are also being made to intensify hybridization programmes to produce hybrids suitable for high density planting. The Centres of AICRP on Cashew have so far developed and released 43 high yielding cashew varieties for commercial cultivation in different agro-eco-regions and some of the new varieties are under evaluation for release.

Besides this, AICRP on Cashew, Directorate of Cashewnut and Cocoa Development (DCCD), Kochi (Kerala) and Cashew Export Promotion Council of India, Kollam are also supporting cashew development and export promotion activities respectively. Cashew Development Corporations under Forest Departments of different states have also involved in developmental activities in cashew. National Horticulture Mission, Govt. of India is also

supporting area expansion programme in cashew. Research efforts of ICAR-DCR, AICRP-Centres for Cashew together with Research Stations under SAUs, have brought out about 54 high yielding cashew varieties (33 selections and 21 hybrids) in the country.

High density planting system of cashew provides higher yield and better economic returns per unit area in the initial years with more efficient use of inputs and spaces available between cashew plants during the initial years of orchard. This planting system doubled the nut yield during the first 10 years of planting. High density planting system is more suitable for soils with low fertility and thereby increases the yield per unit area. High density planting with dwarf and compact canopy varieties should be the target for breeding programme to enhance productivity of cashew per unit area. Limb pruning and diagonal thinning can also be evaluated for their effectiveness in high density planting systems.

I am happy to know that ultra density planting in cashew with 1111 to 1600 plants per ha or more, maintenance of productive canopy by way of pruning and also for obtaining early benefits of crop harvests and higher yield is developed, standardized and demonstrated for the first time in the history of cashew research by ICAR-DCR. The technology has already been transferred to farmer's field and the results are very encouraging. It may be worth if this technology is tried by AICRP Centres and in farmers fields with suitable varieties to study the yield parameters.

Several intercrops can be grown upto first 3-5 years between two rows of cashew plants to get more returns. Moreover, under wider spacing and proper canopy management, intercrops can be grown for longer period of orchard's life. Pineapple is an intercrop option between two rows of cashew for the first seven years. Growing pineapple in trenches across the slope between two rows of cashew helps to conserve the soil moisture, which in turn increases the yield of cashew (main crop) by 1.5 times compared to cashew alone. Other suitable intercrop options are four local vegetables, turmeric, ginger, cucurbits, colocasia and elephant foot yam as well as several medicinal, aromatic and flower plants.

Cashew is generally grown on degraded lands and experiences severe moisture stress from January to May, which adversely affects flowering, fruit set and yield. In order to harvest the rainwater and to make it available to the cashew plant during critical period of reproductive phase, *in situ* soil and water conservation techniques like terracing with crescent bund of individual plant and staggered trenches across the slope filled with coconut husk burial are found effective in conserving soil moisture resulting in increased yield.

Cashew is infested by over 180 insect pests at different phenological stages of the crop. Cashew stem and root borer (CSRB) and tea mosquito bug (TMB) are the two major pests causing considerable loss in yield. Pests damage almost every part of cashew plant viz., root, stem, bark, leaves, shoot, inflorescence, fruits and nuts.

Commercial production of grafts of recommended cashew varieties by government as well as private agencies has enabled faster expansion of area under cashew with improved region specific varieties. I understand that currently, over 4-5 lakh grafts are being produced by

this Directorate and distributed annually in the country and about 80-100 lakh grafts by Government and private nurseries, which is a commendable achievement.

Now India is facing stiff competition in cashew raw nut production and international cashew trade. Till recently, India maintained number one position in international cashew trade fetching a considerable amount as foreign exchange. Countries like Vietnam, Ivory Coast, Brazil, Tanzania etc are also producing cashew nut in large quantity. Vietnam being a small country has made rapid progress in cashewnut production. Most of the cashew producing countries are developing their own infrastructure facilities for processing the cashew and exporting. Since the production of cashew raw nuts in the country was not sufficient to meet the growing demand of cashew industry, India was importing raw nuts from African Countries. Now the situation is slowly changing and we may be in a difficult position to get raw nuts from other countries to feed the cashew industry. We the scientific community with the support of development agencies should streamline our strategies in increasing production and productivity to retain our supremacy in international trade.

I take this opportunity to express my sincere thanks to the Director, DCR for inviting me and giving me an opportunity to participate in this Annual Group Meeting of AICRP on Cashew. I hope the deliberations during the technical sessions will bring forth a tangible change in our approach to future cashew research and development programmes in the country. The concerted efforts by all stakeholders will definitely help in meeting self sufficiency in cashew nut production in the country.

Thank you, Jai Hind

PROJECT COORDINATOR'S REPORT

Dr. M.G. NAYAK

Director (Acting), ICAR-DCR and Project Coordinator, AICRP-Cashew

Respected Dr. K. V. Peter, Hon'ble former Vice-Chancellor of Kerala Agricultural University and our Chief Guest, Dr. P. Chowdappa, Director, CPCRI, Kasaragod and President of today's function; the guest of honour for today's function, Dr. M.G. Bhat, Former Director, ICAR-DCR and distinguished delegates; scientists from ICAR-DCR Puttur and AICRP-Cashew; invitees; media persons; ladies & gentlemen,

I would like to express my sincere gratitude to all the dignitaries on the dais, delegates and invitees for making it convenient to be here for the inaugural function of the Annual Group Meeting of AICRP on Cashew. I take this opportunity to express my gratefulness to Dr. A.K. Singh, DDG (Hort.) ICAR New Delhi for permitting us to host this Annual Group Meeting of AICRP on Cashew – 2017 at this Directorate of Cashew Research, Puttur. On this occasion, I am happy to present the Project Coordinator's Report. An independent All India Coordinated Research Project on Cashew was established in the year 1986 with its headquarters at this Directorate. At present, AICRP on Cashew has 14 Centres of which Bapatla (Andhra Pradesh), Bhubaneswar (Odisha), Jhargram (West Bengal) and Vridhachalam (Tamil Nadu) are located on the eastern coast; Madakkathara and Pilicode (Kerala), Vengurla (Maharashtra) and Paria (Gujarat) are situated on the western coast. Further, three centres are located in non-traditional areas, at Hogalagere (in plains of Karnataka), Jagdalpur (Chhattisgarh) and at Darisai (Jharkhand). Besides, three voluntary centres are also functioning under AICRP-Cashew at Kanabargi in Karnataka, Tura in Meghalaya and at Ela Farm, Goa.

All the centres of AICRP on Cashew have Regional Cashew Field Gene Banks (RCFGBs) wherein germplasm accessions are being maintained and their performance are being evaluated. The total germplasm collection till the date is 1710. Efforts are being made to intensify hybridization programmes by Centres of AICRP Cashew to produce hybrids suitable for high density planting. The Centres of AICRP on Cashew have so far developed and released 42 high yielding cashew varieties for commercial cultivation in different agro-eco-regions.

Technologies developed by the Centres have been well accepted by the farmers and played a major role in augmenting their income. Plantations raised with high yielding grafts of cashew varieties and adoption of technologies developed by the Centres of AICRP on Cashew has helped in enhancing production and productivity of cashew. Around 4,45,000 cashew grafts of high yielding varieties have been produced during 2016-17 by different coordinating centers to meet the growing demand of farmers and developmental agencies. The extension activities undertaken by the Centres have helped the farmers in cultivating cashew in a scientific way to fetch more income.

Trials undertaken at this Directorate and in some farmers fields have proved that ultra high density planting system would be promising than normal spacing trials. The Coordinating Centres should also try this planting system in their fields to study the location specific

problems and yield parameters. Canopy management by adopting region specific and variety specific pruning methods to maintain optimum canopy in the high density planting and ultra-high density planting systems would be more beneficial in realizing higher yields by utilizing allotted space and harnessing solar energy in early part of orchard development. Integrated nutrient and water management are crucial in cashew orcharding for improving productivity of quality nuts. Field trials undertaken at different coordinating centres have found that Intercropping of cashew with vegetables, tuber crops and pulses as well as medicinal plants are beneficial and can enhance the returns from cashew orchards in the early stages of orchard life.

Trials are going on in different coordinating centres of cashew in controlling Tea Mosquito Bug (TMB) and Cashew Stem and Root Borers (CSRB) the two major pests affecting the production and productivity of cashew. Intensification on management of tea mosquito bug and other foliage pests using newer molecules, feasible management strategies for Cashew Stem and Root Borers as well as evaluation of cashew germplasm tolerant to major pests are the need of the hour.

Now, the Govt. of India has taken major initiatives in area expansion of cashew by providing financial assistance to the tribal farmers through TSP Scheme and in North Eastern Hill States of the country through NEH Scheme. The National Horticulture Mission and Directorate of Cashewnut and Cocoa Development are also playing a pivotal role in cashew expansion programme in the country. In this Annual Group Meeting, we will be reviewing the results obtained in various experiments under AICRP Cashew for the preceding year and formulate research programmes for the ensuing year to address the region specific problems in cashew cultivation. I would like to emphasize some of the salient results.

CROP IMPROVEMENT:

During the year 2016-17, the Project Coordinator had visited Jhargram, Hogalagere, Vengurle, Goa, Bhubaneshwar, Darisai centers for reviewing the on-going research programmes. Germplasm survey in West Bengal and Jharkhand was conducted and could identify and collect one profuse fruiting type in Jhargram and another *Semecarpus anacardium* accession in Jharkhand. Cashew germplasm accessions have been conserved and are being evaluated at all centres of AICRP-Cashew to assess their suitability for specific regions. The yield attributes are recorded to select promising accessions as parents in crossing programmes. At Bapatla center five new accessions, at Goa 3 accessions, and one new accession in Bhubaneshwar center have been collected. Baramasi type (fruiting throughout the year) has been identified at Tura center. At Hogalagere center, 104 accessions have been planted and established. 100 germplasm accessions have been characterized at Bhubaneshwar center. Further, a trial has been laid out with 6 CNSL free types in Vengurle center.

In Multilocation trial - III, many promising hybrids such as BPP-8 (Bapatla), H-14, H-32/4 at Madakkathara and Vridhachalam, H-675 at Vengurle have been identified. In

Multilocation trial - V where released varieties of different centers are under evaluation, Madakkathara-1 at Hogalagere, BPP-8 at Darisai, Sulabha at Madakkathara, Priyanka at Pilicode have been found promising. As far as hybridization and selection is concerned, more than 200 hybrid progenies are under evaluation at Bapatla and many promising hybrids have been identified. C2-6 is a promising hybrid identified in Bhubaneswar center. More than 100 hybrids are under evaluation in Goa centre. Further 194 hybrids have been produced with 9 parental combinations in this centre. At Pilicode centre, dwarf hybrids using PLD-57 as parent are produced and are under preliminary evaluation. At Vengurle centre, out of 2756 hybrid progenies, 58 progenies are evaluated and 18 hybrids have been selected for further evaluation. With respect to characterization of germplasm for apple characters, many accessions such as 8/7, PLD-3, CARS-8 M103/7 have been found promising for apple characteristics such as TSS, acidity and Vitamin C.

CROP MANAGEMENT

In nutrient management experiment, application of 100% RDF+10 Kg FYM along with foliar spray of major nutrients (3% Urea + 0.5% ZnSO₄+0.1% Boran+0.3% Mg SO₄) and secondary nutrients was found to be significantly superior with respect to mean nut yield at Hogalagere and Bhubaneswar centre. The irrigation treatment of 80% of cumulative pan evaporation found to be better in terms of reproductive parameters at Hogalagere, Vridhachalam and Vengurle centres. As for as intercropping experiment is concerned, the experiment is concluded at different centres of AICRP and new set of intercrops such as Crossandra, Chrysanthemum, China Aster, Marigold have been chosen at Bapatla centre and Chillies, Brinjal, Tomato, Bhendi, Cluster Bean have been selected at Vridhachalam. As for as organic management of cashew is concerned, recommended dose of fertilizer with 10 kg FYM has given best results in Bapatla, Darisai, Hogalagere, Vengurle and Vridhachalam centres. However, in Jhargram centre, 100% N as FYM gave the highest yield. In Madakkathara and Kanabargi centres, 100% N from FYM + Biofertilizer consortium have given promising results.

CROP PROTECTION

The incidence of TMB during the period under report was very less at Bhubaneswar, Jagdalpur and Madakkathara. Shoot tip caterpillar, Inflorescence thrips and apple and nut borers were the dominant pests observed during flushing, flowering and fruit setting in cashew. Thiomethoxam (0.2 g/l) was effective in managing TMB at Hogalagere and Kanabargi centres. This was followed by Lamda Cyhalothrin. However at Vengurle center, Buprofezin was effective. For leaf caterpillar *Beauveria Bassiana* (5g/l) was effective at Jagadalpur centre. The population trends of various natural enemies in respect of all the insecticides treatment gradually decimated the population of spiders, coccinellids, ants and braconid wasp after each round of insecticidal spray.

The lower tree population in all cashew growing tracts is due to destructive damage of yielding trees by cashew stem and root borers. However, post extraction prophylaxis (PEP) trials taken up by various AICRP-Cashew centres indicated that Fipronil swabbing (2ml/l) was

found effective in Bapatla, Hogalagere and Vengurle centres. However Chlorpyrifos (10 ml/litre) could lead to better recovery, lower reinfestation in Bhubaneswar, Jagadapur and Vridhachalam centres. At Madakkathara centre, neem oil suspension @ 50 ml/l gave better results. Screening of cashew germplasm for level of pest infestation is being done on a regular basis, but till date, none of the cashew accessions were noticed to exhibit pest tolerance to incidence of foliage pests. It is found in different centres that temperature and humidity are the major factors influencing the pest complex in cashew.

TRANSFER OF TECHNOLOGY

It is worth mentioning that the Centres of AICRP on Cashew have conducted 25 training programmes on different aspect of cashew cultivation and management practices for the benefit of cashew farmers and for the officials of development agencies. During the year, ten cashew awareness campaigns were also conducted by different AICRP centers for empowering tribal farmers. Frontline demonstration plots have been laid out by different centres to disseminate the recent production techniques with backup of necessary technical guidance. I am happy to say that the efforts put in by scientists of AICRP Cashew Centres in terms of producing quality planting material, conducting training programmes on various themes have led to a wider awareness and helped in popularizing the cashew technology among farmers. I sincerely hope that all scientists of AICRP-Cashew will be earnestly implementing the approved technical programmes for their centres as well as, the decisions that will be taken in this Annual Group Meeting. I would like to express my deep sense of gratitude to the Hon'ble Deputy Director General (Hort.), Dr. W.S. Dhillon, Assistant Director General (Hort. Science) and other officials in the Horticulture Science Division of ICAR for their guidance and support from time to time. Thanks are also due to all the invitees and experts who are supporting me in different capacities.

Before I conclude my report, I would like to thank all my scientist colleagues of the coordinating centres of AICRP on Cashew for extending cooperation for the effective functioning of the AICRP work in their respective centres. The financial assistance and timely help extended by Director, DCCD-Kochi Dr. Venkatesh N. Hubballi in conducting cashew extension and development activities is gratefully acknowledged. I sincerely acknowledge the cooperation and technical support received from my colleagues at DCR, Puttur particularly Dr. Mohana G.S., Senior Scientist & Scientist-in-charge of PC Cell and Mrs. Reshma K., Personal Assistant for attending to the day-to-day work of the Project Coordinator's Cell.

*** Jai Hind ***

ACTION TAKEN REPORT ON THE DECISIONS OF AGM-2016

Action taken report on major recommendations of the Annual Group Meeting held at Regional Research Station, Vridhachalam, Tamil Nadu was presented by Dr. Mohana G.S., Sr. Scientist (Gen. & Cytogen.) & Scientist-in-charge, PC Cell, ICAR-DCR, Puttur.

Sl. No.	DECISIONS OF AGM-2016	ACTION TAKEN BY THE CENTRE
	CROP IMPROVEMENT	
	Gen 1. Germplasm collection, conservation, evaluation, characterization and cataloguing	
1.	The cashew accessions evaluated for more than ten years or data recorded for six years of harvest need not be further evaluated since consistent results were obtained from the already generated data. These accessions may be conserved in the respective centres.	<p>Bhubaneswar: Out of 108 cashew accessions collected and preserved in Regional Field Gene Bank, 100 germplasm have been characterized as all the accessions have completed 10 year of planting or sixth harvest. The rest eight accessions are at vegetative stage.</p> <p>Jhargram : The cashew accessions evaluated for more than ten years have been characterized and data sent to DCR, Puttur and the accessions have been conserved in the field gene bank.</p> <p>Pilicode: The trial was concluded. The accessions have been conserved.</p> <p>Conserved at other centers: Vengurle, Vridhachalam and Madakkathara</p> <p>Tura: 16 accessions are conserved and two of them are Baramasi types</p>
2.	Some centres reported uniqueness or distinctive characters in the cashew germplasm. The project coordinating centre may decide the centres where these accessions may be conserved apart from the reported centres.	The reporting centres are conserving the unique accessions. Other centers if required can evaluate those accessions and conserve them.
3.	The superior accessions may be shared to Directorate of Cashew Research, Puttur for conservation and core analysis.	Jhargram, Jagdalpur and Vengurle have contributed accessions. Vengurle centre has given the data for core collection.
4.	There should not be duplication of the germplasm at centre level.	The duplicates is already identified and left the discretion of the centres whether to retain or remove them.

GEN. 3 Multi Locational Trial (MLT III)		
1.	A total of 14 centres conducted multi locational trials. The centres conducted MLT for 10 years and above may conclude the MLT III since concrete recommendations are obtained from the data generated already.	Concluded at Bhubaneshwar, Madakkathara, Vridhachalam Vengurle: MLT-III trial re-planted at AICRP Cashew, Vengurle centre during 2008 and completed the five harvests during 2016 and hence trial needs to be continued for next 1-2 years to arrive at concrete recommendations.
GEN. 3 Multi Locational Trial (MLT V)		
1.	All the centres should conclude the trial after six harvests.	This is being followed by all the Centres.
GEN. 4 Hybridization and Selection		
1.	Nine centres conducted this experiment. Some of the centres reported high yielding hybrids based on the data generated for 10 years and above. These hybrids may be evaluated in new MLTs in different centres.	Jhargram: The promising hybrids have been clonally propagated and evaluation has been done under Gen- 1 within the centre with replicated trial. Vengurle: A total 58 F ₁ cashew progenies were evaluated as promising hybrids during 2015-16. Out of these 58 F ₁ hybrids; the replicated trial of the 18 top performing hybrids is being initiated during July, 2016 at Vengurle centre for further evaluation. The new MLTs trial will be the laid out at Vengurle centre after the new set of high yielding hybrids
2.	It is suggested that before selecting the parents for hybridization programme, the purpose and objective of the hybridization have to be finalized.	Being followed in Centres where hybridization is done.
3.	New breeding approaches with reduced breeding cycles may be tried. Grafts of high yielding hybrids viz., H-504 (Bapatla), C2-6 (Bhubaneshwar), H 12/05 (Goa), H-2917 (Vengurla), VRI (cw) H1 (Vridhachalam) may be planted in 3m x 2m spacing @ 5 grafts/hybrid under insect proof cover. During flowering, cross pollination may be effected using any pollinating insects. The nuts may be collected, hybrid seedling may be raised in polythene bags. Four or Five scion	Bapatla: Done Bhubaneshwar: Scion material of hybrid H-504 from Bapatla are awaited. Goa: For initiating this new breeding approach, the scion sticks of H-12/05, from Goa centre, were sent to the following AICRP Cashew Centres : Vengurle, Madakkathara, Bhubhaneshwar, Vridhachalam, Bapatla.

	shoots/ hybrid seedling may be collected for grafting. The performance of the grafted genotypes may be studied and the superior types may be used for commercial exploitation/breeding programme	<p>The scion sticks of hybrids viz. H-504 (Bapatla), C2-6 (Bhubaneswar), H-2917 (Vengurle), VRI (cw) H1 (Vridhachalam) were collected and grafts prepared for planting in the field at 3m X 2m spacing in the ensuing season.</p> <p>Madakkathara: New breeding trial started as per the technical program</p> <p>Vengurle: Other things are taken care. However, the scion sticks of H-504 from Bapatla centre are not available due to the tree damaged by cyclone as informed by horticulturist, Bapatla centre.</p> <p>Vridhachalam: Scion sticks of VRI-3 and VRI (CW) H-1 have been sent to Vengurla, Bapatla, Bhubaneswar and Madakkathara during June-July, 2017 as per the suggestion. Scion sticks of hybrids H12/05 and VAL POI-2 were received from Goa and grafts were prepared and are kept ready for planting. Further scion of H-2917 was also received from Vengurla and grafts are ready for planting.</p>
Gen. 5 Characterization of germplasm for cashew apple		
1.	The centres evaluated the germplasm for more than 10 years and above need not evaluate the germplasm in the subsequent years.	This is being followed by all centres.
CROP MANAGEMENT		
General Recommendations		
1.	Lead centres were identified for compilation of the concluded experiments and submitting the same to DCR. The PC cell may arrange to get the reports from participating centres and forward to lead centre with a time frame to compile the final report.	Taken care
	a) Hort-2. : Fertilizer application in high density cashew plantations. Lead Centre : CRS, OUAT, Bhubaneswar, Orissa.	Bapatla, Bhubaneswar, Jhargram, Madakkathara, Pilicode, Vengurle
	b) Hort-6. : Intercropping in cashew Lead Centre: RFRS, Vengurle, Maharashtra.	Bapatla, Bhubaneswar, Jhargram, Madakkathara, Vengurle

	<p>C) Hort- 10. : Varietal screening of cashew apple for preparation of RTS and Jam. Lead Centre: CRS, Madakkathara, Thrissur.</p>	<p>Hogalagere, Vengurle, Jhargram, Madakkathara, Pilicode, Paria, Bapatla, Kanabargi</p>
<p>2.</p>	<p>The experiment on organic management of cashew should be continued in all the centres and presented with soil analysis data. Pest and Disease incidence should be recorded. Nutrient addition through recycling organic residues, green manures to be quantified and adjusted in the nutrient schedule of the treatments. Economic feasibility of organic farming over conventional farming to be worked out.</p>	<p>Bapatla: The nutrient contents of the FYM and Green leaf manures were computed and quantified while imposing the treatments.</p> <p>Bhubaneshwar: Experiment is continuing; Soil nutrient status has been analysed; Pest and disease incidence has been recorded Quantification of nutrient addition through recycling organic residues, green manures has been done and adjusted in the nutrient schedule of the treatments; Economic feasibility of organic farming over conventional farming has been worked out.</p> <p>Hogalagere: Taken care</p> <p>Jhargram: The experiment is progressing well. Soil analysis has been done. Organic manures has been applied after nutrient analysis of the manures.</p> <p>Madakkathara: Being continued and observations recorded as per suggestions.</p> <p>Vengurle: The centre every year analyzed the soil samples (after harvest) and presented the same in the AGM on AICRP-Cashew. The pest and disease incidence during cashew season 2016-17 is recorded and will be presented in AGM-2017.</p> <p>Analysis of Nutrient addition through recycling organic residues, green manures is analysed and data will be presented in AGM-2017. Economic of the trial is worked out and presented in the report</p> <p>Vridhachalam: Taken care</p>

3.	The technical programme of all the experiments should be uploaded by DCR, Puttur to the website for the reference of the AICRP scientists.	Uploaded
4.	All the centres should follow uniform scale (9 point hedonic scale) in varietal screening for scoring RTS and Jam.	Agreed and being followed
	<p>Proposal for new experiment: Ultra High Density cum drip irrigation trial laid out in RRS, Vridhachalam in cashew is a very good second generation trial with lot of promise for higher economic returns to the farmers. Centres identified for laying out the new experiment are Bapatla, Vengurla, Jhargram, Madakkathara, Paria, Bhubaneswar. Technical Programme will be formulated by Vridhachalam centre in consultation with DCR, Puttur for implementing in different centres.</p>	<p>Bapatla: will be taken up as per the guidelines</p> <p>Bhubaneswar: Process initiated</p> <p>Jhargram: This year the experiment could not be laid out due to delay in finalizing the experiment lay out.</p> <p>Madakkathara: Laid out the experiment as per the technical program from DCR, Puttur</p> <p>Paria: The experiment will be laid out after finalizing all technical aspects.</p> <p>Vengurle: The centre will lay out the new trial on “Ultra High Density cum drip irrigation” with three spacing and three cashew varieties viz., VRI-3, Ullal-1 and V-9 (local) as per the guidelines of the Director, DCR, Puttur during his visit to Vengurle centre on 16/9/2017. For initiation of said trial, scion sticks of cashew variety VRI-3 and Ullal-1 already collected from DCR, Puttur during June, 2017 and grafts of above said four varieties were prepared. The grafts will be planted in January, 2018.</p>
	Hort-3. Drip irrigation trial	
	<p>General recommendation:</p> <p>i. The quantity of water applied in treatments IW/CPE ratio should be indicated by all the centres along with the number of irrigations covering the flushing and flowering phases in a year.</p> <p>ii. In the economic analysis the break even period for recovering the investment in drip system may be worked out.</p>	<p>Attended by Hogalagere</p> <p>Vengurle: The quantity of water applied in each treatment (IW/CPE ratio) per day is presented by Vengurle centre every year. The number of irrigations covering the flushing and flowering phases in a year will be recorded in the ensuing</p>

		cashew season 2017-18. Economics will be worked out.
	Hort -6: Intercropping in cashew	
	<p>i. Intercrops of economic importance to the region should be selected.</p> <p>ii. In all the centres effective intercrops and related inputs on main crop of cashew to be worked out.</p>	<p>Selected in Jhargram, will be presented during the presentation.</p> <p>Vengurle: The five intercrops viz., Dolicus bean (wali), Radish, Cowpea, Chilli and Amaranthus which are economically importance for the Konkan region are selected. For initiation of said trial, the grafts of cashew variety V-9 were already planted at 7m x7m during December, 2016. The replicated trial with new set of intercrops will be laid in <i>Rabi</i> season. The effective intercrops and related inputs on main crop of cashew was already worked out and included in the compiled concluded report of both Vengurle & Bapatla centres.</p> <p>Paria: The experiment will be laid out with new set of intercrops.</p> <p>Vridhachalam: Crops viz; tomato, chilli, bhendi, brinjal and gourds have been selected and sown</p>
	Hort- 10: Varietal screening of cashew apple for preparation of RTS and Jam	
	General recommendation: The experiment should be concluded and technical bulletin should be published.	Technical Bulletin is published.
	CROP PROTECTION	
	General Recommendation :	
1.	Director UPASI, Valparai may be contacted to include pheromone component for management of TMB.	<p>Bapatla : As per the recommendations, pheromone component will be included in this season.</p> <p>Bhubaneshwar : TMB is not a serious problem in Odisha state rather CSRB is number one major pest of cashew in the entire state.</p> <p>Jhargram : The experiments on crop protection could not be conducted due to absence of entomologist.</p>

		<p>Madakkathara : Yet to be contacted</p> <p>Vengurle : The Vengurle centre has communicated with Director UPASI, Valparai for including pheromone component vide office letter No. RFRS/Cashew-ICAR/3119/2017, dated 15/9/2017; however, reply is awaited.</p> <p>Vridhachalam : Necessary arrangements are made.</p>
2.	Dr. P.N. Ganga Visalaskhy, Principal Scientist, ICAR-IIHR, Bangalore requested that the formulation based on <i>Beauveria bassiana</i> supplied by ICAR-IIHR for evaluation against TMB and other pests may be indicated in the experimental results.	Taken care by Bapatla, Bhubaneswar, Madakkathara, Vengurle, Vridhachalam
3.	Under Experiment 3, in addition to documenting effect of abiotic factors on pests and natural enemies, the seasonal abundance of the each pest and its natural enemies may also be documented/studied. This would provide the impact of natural enemies in suppression of the target pests, besides providing the exact time for intervention by chemicals for controlling the target pest whereby the load of chemical pesticides could be reduced.	Documented and will be presented by Bapatla, Bhubaneswar, Madakkathara, Vengurle, Vridhachalam
4.	The taxonomical hierarchy <i>i.e.</i> , order, family, genus, species of the natural enemies recorded and their population may be provided in the report.	Provided by Bapatla, Bhubaneswar, Madakkathara, Vengurle, Vridhachalam

Centre wise Recommendation: Bapatla

Recommendations	Action taken
Crop Improvement	
<p>Gen.1 Germplasm collection, conservation, evaluation, characterization and cataloguing</p> <p>A separate trial for CNSL free types (tender kernel) should be conducted by the centre with RFRS-195 and five types from DCR, Puttur. The trial should be laid out at 4m × 4m.</p>	Scion material of RFRS-195 were brought and grafted. Scion sticks from DCR, Puttur are procured. However, grafting success is very low. Hence again it will be tried.

Centre wise Recommendation : Bhubaneswar

Sl. No.	Decisions of AGM, 2016	Action taken by the centre
Crop Improvement		
1.	Unique characters should be taken into account while collecting the local types	The recommendation has been taken care while collection of germplasm

2.	The mean and CV% should be given in the table while presenting the data.	The recommendation has been taken care
CROP MANAGEMENT		
Centre wise Recommendation		
	The experiment on intercropping in cashew should be initiated with new set of intercrops.	Cashew plants in the existing intercropping experiment are already over matured (15 years) and to start the experiment with new intercrops require new planting. This will be done after cleaning of area. The process has already been started.

Centre wise Recommendation : Goa

Technical Session	Programme	Recommendation / Decision	Action taken
Crop Improvement (Tech.I Session II)	Gen. 1. Germplasm collection, conservation, evaluation, characterization and cataloguing	Bold nut type-Valpoi-2 be multiplied and grafts may be distributed to other centres.	Scion sticks of Valpoi-2 (Bold nut accession) have been sent during Sept 2017, to AICRP Centres viz.- 1.RFRS,Vengurla (DRBSKKV, Dapoli), 2. CRS, Madakkathara (KAU), 3.CRS, OUAT, Bhubhaneshwar, 4.RRS, Vridhachalam, TNAU, 5. CRS, Bapatla, (DR YSR Hort. Univ. AP) Grafts of Valpoi-2 accession are also prepared and are available for other centres also
	GEN. 3 Multi Locational Trials (MLT VI)	The experiment may be discontinued at Goa Centre	The experiment was discontinued

Centre wise Recommendation : Hogalagere

Expt. No.	Title of the experiment	Action recommended	Action taken
II. CROP MANAGEMENT			
Hort.1.	Nutrient management for yield maximization in cashew	a) Soil and tissue analysis data should be presented for meaningful inferences from the experiments. b) Statistical analysis should be rechecked.	a) Soil & tissue analysis has been done b) Statistical analysis has been rechecked

Centre wise Recommendation: Pilicode

Name of the experiment	Action recommended	Action taken
	Pilicode centre which belongs to Kasaragod (organic) district may conduct crop improvement experiments organically.	New trial will be conducted organically as the ongoing trial in concluded
Characterization of germplasm for apple characters	Analysis of cashew apple for quality parameters like vitamin C, tannin content and nutraceutical properties may be taken up.	Already being done. Analysis for nutraceutical value could not be conducted this year. Will be done in coming crop season.

Centre wise Recommendation : Vengurle

Sr. No.	Decision/Recommendation	Action taken
Gen 1. Germplasm collection, conservation, evaluation, characterization and cataloguing		
1.	A separate trial for CNSL free types (tender kernel) should be taken up with RFRS-195 and five CNSL free types from DCR, Puttur. The trial should be laid out at 4m × 4m at Vengurla.	For taking up a separate trial on CNSL free types (tender kernel), the grafts of RFRS-195 (Vengurle) and five CNSL free types (DCR, Puttur) are prepared during June, 2017. The replicated trial will be laid out at 4m x 4m at Vengurla centre in June, 2018.
Hort. 6: Intercropping in cashew		
1.	The ongoing experiment to be concluded in Vengurle and relaid with a new set of intercrops.	The ongoing trial is concluded by Vengurle centre and final concluding report of the trial submitted to the Director and PC, DCR, Puttur. Similarly, as per decision of AGM-2016, the compiled concluded report of both Vengurle and Bapatla centres also submitted to the Director and PC, DCR, Puttur. The final compiled concluding report will be presented in AGM-2017. The new trial will be laid with new set of intercrops.
Hort. 7: Organic Management of cashew		
1.	Lime application based on lime requirement is recommended to correct the pH of soil for better availability of nutrients.	To correct the pH of soil the required quantity of lime was applied.

Centre wise Recommendation : Vridhachalam

S. No.	Remarks	Action taken
1.	Crop improvement Mark the tree for GPS and multiply the continuous flowering type (MDN-4, 6 and 9) planted at Vridhachalam centre and also supply	Preparation of grafts from the selected trees was done and planting of MDN-4, 6 and 9 has been completed during August,

	to DCR, Puttur.	2017. The scion sticks of the above types are being sent to DCR, Puttur
2.	The MDN-4 type should be used in hybridization programme	Hybrids already developed are being maintained and MDN 4 will be used in the hybridization programme during 2018.
3.	HC-6 semi dwarf type accession should be multiplied and distribute 10 grafts each to all centres HC-6 semi dwarf type accession should be multiplied and distribute 10 grafts each to all centres	Multiplication of HC-6 is in progress.
4.	A separate trial for CNSL free types (tender kernel) should be conducted by the centre with RFRS-195 and five types from DCR, Puttur. The trial should be laid out in close planting (4m x 4m). A separate trial for CNSL free types (tender kernel) should be conducted by the centre with RFRS-195 and five types from DCR, Puttur. The trial should be laid out in close planting (4m x 4m).	Grafts have been prepared from scions viz. RFRS-195 and the plants are kept ready. Trial will be taken up during 2018

Centre wise Recommendation : Barapani

S. No.	Remarks	Action taken
	Crop improvement :	
1.	Baramasi type may be multiplied and distributed to other centres.	Not yet distributed to the any centre however one /two plant will be distributed to DCR Puttur by December Annual Meeting. However multiplication of sapling through grafting is going on.

RECOMMENDATIONS OF AGM – 2017

The major recommendations of the Annual Group Meeting of AICRP-Cashew held during 21-23rd December 2017 at this Directorate are presented below.

CROP IMPROVEMENT

General decisions/recommendations to all the centres

1. Title of the newly formulated project involving hybridization of polyclonal parents may be changed as “**Rapid Polyclonal hybrid evaluation trial**”. Further, it was decided that at least 100 nuts/ parent and total of at least 500 nuts from 5 parents used in the experiment were to be raised and evaluated for yield traits in this trial.
2. The GPS data points and photo/ video documentations to be made while collecting the germplasm.
3. While collecting the germplasm from the farmers field due credit should be given to the farmers
4. While collecting, recording and presentation of data, uniform terminology to be used as per the experimental manual provided by DCR, Puttur.
5. Characterization of accessions is to be carried out by following cashew descriptor.
6. Spacing decided in the group meeting should be followed across all the centers for enabling better interpretation of results.
7. Proper statistical details such as Mean, SEm, CD and CV are to be shown in the results.
8. Performance of hybrids or varieties need to be compared with check varieties should be considered in all MLTs.
9. Application of biotechnological tools such as molecular markers in evaluating the breeding and germplasm material can improve the efficiency of the cashew breeding programmes.

CROP MANAGEMENT

General recommendations

1. Soil and water analysis should be conducted in all the centers before initiating a new experiment.
2. Leaf and soil analysis should be carried out in organic management trial.
3. Land equivalent ratio and cashew equivalent yield should be calculated for intercropping trial before concluding the trial.
4. Microbial population should be studied in organic management trial.
5. High density observational trial should be concluded after 10th harvest.
6. All the centers should include high resolution photographs or video clips of their experimental plots during presentation.
7. Quality parameters of nut and cashew apple under organic management of cashew should be studied before concluding the experiment.
8. Economics should be worked out during compilation of the concluded experiments.

CROP PROTECTION

General recommendations:

1. Pests and natural enemies reported by the AICRP centres should properly get identified at NBAIR, Bengaluru or IARI, New Delhi.
2. Photos taken from the respective centers need to be acknowledged.
3. Germplasm screening for pests collected over years may be pooled. To confirm the resistance of the promising germplasm for pest resistance, challenging of specific pests is required on selected shoots / inflorescences. Help from DCR may be taken for this.
4. Germplasm screening data need to be recorded in comparison with released variety as a check.
5. While recording observations, procedure mentioned in experimental manual need to be adopted strictly and data must be reported uniformly among the centres.
6. For the insecticides trials, yield need to be recorded and cost-benefit ratio to be worked out.
7. Based on the data generated over the past years on influence of weather factors on pest complex, prediction models may be developed.
8. Influence of biotic factors on pest incidence need to be quantified and subjected to correlation analysis with pests as dependant factor.
9. For curative trial on CSRB, two-way table analysis may be followed to see the influence of stem girth and age of trees, using Chi-Square test. "Insect Ecology" by T.R.E. Southwood may be referred for this.
10. Observations should be properly analyzed with required transformation in consultation with statistician.
11. When pretreatment count has significant difference, required corrections to be applied while data analysis, or ensure homogeneity of population.
12. Quality of neem oil tested against CSRB need to be verified or possibility of using commercial azadirachtin may be looked into.
13. PC cell has to take steps for getting label claims for the insecticides found effective across centres from CIB, so as to include in recommendations for pest management.
14. All SAU's must intimate the PC regarding transfer of AICRP (cashew) scientists or the scientist may be transferred after training the new scientist.

TECHNICAL SESSION II : CROP IMPROVEMENT

- Chairman : Dr. MG Bhat, Former Director, ICAR-DCR, Puttur
- Rapporteurs : 1. Shri. K. Umamaheshwar Rao, Scientist (Hort), CRS, Bapatla
2. Dr. Siddanna Savadi, Scientist (Biotech), ICAR-DCR, Puttur

CENTRE WISE DECISIONS

1. Bapatla Centre

Gen1.

1. Characterization of yield and related parameters in the germplasm collected by the centre should be done by planting new grafts rather than depending on the source collection.

2. Darisai centre

Gen1.

1. Power point slides with appropriate font size and colors should be prepared for presentation of results
2. Data with proper statistical analyses including CD and CV values should be presented

3. Jhargram centre

1. As pruning followed by irrigation may help to rejuvenate cashew plants damaged by hail storms, the same may be adopted in future to revive the plants damaged by unexpected hail storms.
2. The area under cashew in Jhargram region has increased in the past one decade but the planting material used by farmers is seedlings rather than the grafted plants. Hence the centre was asked to promote grafted high yielding varieties in their area.

Gen 4.

1. Nut weights of some of the popular varieties recorded were low and hence data need to be checked.
2. Shelling percentage in Vengurle-7 should be checked.

4. Bhubaneswar centre

1. Ongoing projects to be continued

5. Hogalagere centre

1. Ongoing projects to be continued

6. Vengurle centre

Gen 1.

1. The nutritive value and CNSL content in the RFRS-195, a CNSL free-type accession is to be evaluated

Gen4.

1. The centre has developed numerous hybrids (58) and 18 of which are under replicated trials at the centre.
2. Inheritance of CNSL free character may be studied by crossing CNSL free genotypes with high CNSL containing genotypes.
3. The yield level of one of the interspecific hybrids (H2917) involving *A. microcarpum* was very high which is generally not observed in similar crosses. Hence, the purity of hybrid H2917 has to be ascertained using molecular markers at Vengurle/DCR.

7. Vridhachalam centre

Gen3.

1. Nut weight of various popular varieties was low and hence, the data may be checked along with proper statistical analyses.
2. Data on number of inflorescences per m², number of nuts per m² and number of nuts per inflorescence in MLT V needs to be recorded.

Gen5.

1. VRI(CW)H-1, the color of the apple should be recorded as per the descriptors given in the experimental manual

8. Pilicode centre

Gen3.

1. Proof in the form of photos and video clippings should be provided to substantiate high yields observed in Kanaka variety.
2. Terminology used should be as per the experimental manual provided by DCR, Puttur
3. Shelling percentage is to be worked out by following the procedure given in the experimental manual.

Gen5.

1. Cashew germplasm accessions should be evaluated for apple characteristics like vitamin-c, tannins and other nutraceutical parameters.

9. Paria centre

Gen1

1. This centre has not completed the planting of germplasm accessions and special MLT VI varieties due to unknown reasons. Hence, the project coordinator may visit the centre to know the problems in the centre and discuss with the Director of Research (DR) of the NAVSARI University. Although the centre was started eight years ago, no much progress is made by the centre in establishing the allotted trials.
2. The centre needs to collect at least 20 germplasm accessions from the nearby centres like Vengurle and Goa and also from the forest area of Gujarat and plant them at the earliest.
3. Technical programme should be implemented scrupulously without fail.

Gen3.

1. MLT VI (special) should be taken up immediately.

10. Jagadalpur

1. Ongoing projects to be continued

11. Madakkathara

1. Ongoing projects to be continued

12. Kanabargi centre**Gen 1.**

1. Germplasm accessions may be collected from Khanapur and nearby regions as there is a lot of area under cashew.
2. As major cashew area expansion is taking place in the regions nearby Kanabargi, multiple high yielding varieties should be encouraged for planting.

13. Tura centre**Gen 1.**

1. The centre was asked to provide scion sticks of Baramashi-type accessions to DCR at the earliest.

14. Goa Centre**Gen 1.**

1. Cashew genotypes with higher nut yields and high juiciness and TSS apple characters may be identified.
2. Volpoi 2, a genotype with better fruit set and bold nut-type may be distributed to other centres.

NEW TRIAL
EVALUATION OF PROMISING BOLD NUT, BIGGER SIZE APPLE AND HIGH YIELDING CASHEW
GENOTYPES

Cultivars :

SI	Sponsoring centre	Cashew genotypes
1	CRS, Bapatla	H-218
2	CARS, Jagadapur	CARS-8
3	CCAR, Goa	22/05, Tiswadi-3, Tudal-1
4	RFRS, Vengurle	H3041, H2084
5	CRS, Bhubaneswar	C-136, D-21, E-22
6	DCR, Puttur	H-125, H-126, H-130, NRC-301, NRC-493

Spacing: 6m x 6m

No. of replications: 2

No. of plants per genotype: 4

Centres allotted:

1. Bapatla
2. Bhubaneswar
3. Jhargram
4. Kanabargi
5. Maddakathara
6. Pilicode
7. Goa
8. Vengurle
9. DCR, Puttur
10. Jagdalpur
11. Vridhachalam

Supply of planting material : All the sponsoring centres should provide their planting material in the form of scion sticks to the DCR, Puttur. DCR will produce grafts using scion sticks received from sponsoring centres and code the grafted material. The coded material is to be collected by the identified centres for conducting the trials.

**Programmes allotted to different Centers of AICRP on Cashew
for the next year – 2018-19**

Programmes		Centres
Gen.1.	Germplasm collection, conservation, evaluation, characterization and cataloguing.	Bhubhaneswar, Hogalagere, Darisai, Jagdalpur, Jhargram, Paria, Pilicode, Vridhachalam, Kanabargi, Tura and Goa.
Gen.1a.	Evaluation of germplasm accessions for CNSL content	Bapatla, Vengurla and Vridhachalam
Gen. 3.	Varietal evaluation trial	
	Multilocation trial–III (earlier MLT–2002) (Planted during 2003) (Experiment above 10 years may be concluded)	Bapatla, Hogalagere, Vengurla and Vridhachalam.
	Multilocation trial–V (performance of released varieties) (To be concluded after 6 harvests)	Bapatla, Hogalagere, Jhargram, Jagdalpur, Paria, Pilicode and Vridhachalam.
	Multilocation trial–VI (Special MLT)	Darisai, Paria, Kanabargi and Tura
Gen. 4.	Hybridization and selection	Bapatla, Bhubhaneswar, Hogalagere, Jhargram, Vengurla and Vridhachalam.
	New breeding approach with five different high yielding hybrids	Bapatla, Bhubhaneswar, Madakkathara, Vengurla and Vridhachalam
Gen. 5.	Characterization of germplasm for cashew apple (Experiment above 10 years may be concluded)	Bapatla, Jhargram, Jagdalpur, Goa, Pilicode and Vridhachalam
Gen. 6	Evaluation of promising bold nut, bigger size apple types and high yielding cashew genotypes	Bapatla, Bhubhaneswar, Jagdalpur, Jhargram, Kanabargi, Madakkathara, Pilicode, Goa, Vengurla, DCR, Puttur, Vridachalam

TECHNICAL SESSION III : CROP MANAGEMENT

Chairman : Dr. K.V. Peter, Former Vice-chancellor, KAU
Rapporteurs : Dr. Mini Poduval, Scientist (Horticulture), RRS, BCKVV, Jhargram
Dr. Preethi P., Scientist (Fruit Science), ICAR- DCR, Puttur

Eleven centers presented their experimental results. The Chairman of the session Dr. K.V. Peter emphasized on the following aspects

1. High density planting with pruning studies to maximize yield is the present day demand.
2. Micronutrient deficiency symptoms should be identified and remedial measures need to be standardized in cashew.
3. Emphasis needs to be given to maintain organic standards as per CEPC recommendations.

Center wise recommendations

Bhubaneswar

- I. The soil pH is very low, therefore the soil should be examined for micro-flora population particularly VAM and Endophytic bacteria and management should be done accordingly.
- II. The critical difference for annual nut yield should be rechecked.
- III. Intercropping trial should be initiated with new set of crops.

Hogalagere

- I. The statistical analysis should be rechecked.

Bapatla

- I. All the experiments should be continued as per the mandate.

Darisai

- I. Intercropping should be conducted with rainfed crops and economics should be worked out.
- II. Status report of Jharkhand should be send within a month time to DCR, Puttur.

Jagdapur

- I. NRCC Sel-2 variety can be included in high density observational trial.
- II. It was suggested to carry the experiment on "Screening of cashew apple varieties for RTS and Jam" with released varieties instead of germplasm accessions

Jhargram

- I. Intercropping trial under 6m x 6m spaced plants should be concluded and compiled report should be sent to DCR, Puttur.
- II. Intercropping trials should be initiated with new set of intercrops under 4m X 4m spacing.

Kanabargi

- I. Intercropping trial should be concluded and compiled report should be sent to DCR, Puttur. While analyzing the data the comparison of yield of cashew should be carried out among the treatments.
- II. Intercropping trials should be initiated with new set of intercrops (flowers and vegetables) under 6m x 4m spacing.

Madakkathara

- I. Vegetable crops including one leguminous crop should be taken in the intercropping experiment.
- II. If pepper has taken as intercrop, zero tillage has been recommended.
- III. Lime application is recommended as the pH of the soil is too low in the organic trial.

Vengurle

- I. The drip irrigation trial is concluded and consolidated report should be sent to DCR, Puttur
- II. Intercropping trial should be initiated with new set of crops.

Vridhachalam

- I. The statistical analysis should be rechecked

Paria

Decision was taken that the Project Coordinator and PC Cell In-charge of AICRP on Cashew will visit Paria centre to review the experiments where conduct of trials and presentation were below expectation.

Programmes allotted to different AICRP Cashew centers for the next year – 2018-19

Programmes		Centres
Hort.1.	Nutrient management for yield maximization in cashew.	Bhubaneswar, Hogalagere, Madakkathara and Paria
Hort.2.	Fertilizer application in high density cashew plantations	Bapatla, Hogalagere and Jhargram
Hort.3.	Drip irrigation trials	Hogalagere and Jagdalpur
Hort.4.	High density planting - observational trials	Bapatla, Jhargram, Jagdalpur and Vridhachalam.
Hort.6.	Intercropping in cashew	Bapatla, Darisai, Jhargram, Madakkathara, Paria, Vengurla, Vridhachalam and Kanabargi.
Hort.7.	Organic management of cashew	Bapatla, Bhubaneswar, Darisai, Hogalagere Jhargram, Madakkathara, Vengurla, Vridhachalam and Kanabargi
Hort.8.	Spacing cum Fertilizer Trial	Darisai, Paria, Kanabargi and Tura.
Hort.9.	Evaluation of production potential of newly developed variety Jhargram-2 at different spacings.	Jhargram, Darisai and Paria
Hort.11.	Ultra High density cum Drip Irrigation	Bapatla, Bhubaneswar, Jhargram, Madakkathara, Paria and Vengurla

TECHNICAL SESSION IV : CROP PROTECTION

Chairman : Dr. Abraham Verghese, Former Director, NBAIR, Bengaluru
Rapporteurs : 1. Dr. Jaya Prabhavathi, Scientist (Ag. Ento.), RRS, Vridhachalam
2. Dr. K. Vanitha, Scientist (Ag. Ento.), ICAR-DCR, Puttur

The session was chaired by Dr. Abraham Verghese, Former Director, NBAIR, Bengaluru, in the presence of Dr. M. G. Nayak, Director (Acting) and Project coordinator, AICRP on Cashew and the scientist in charge PC cell, Dr. G.S. Mohana, Senior Scientist, DCR, Puttur. The following centres presented the experimental results. Bapatla, Bhubaneswar, Vridhachalam, Madakkathara, Vengurle, Hogalagere, Jagdalpur, Paria, Kanabargi.

CENTRE WISE RECOMMENDATIONS:

Bapatla

1. Number of trees for different treatment may be kept uniform for insecticides trial and treatment size may be enhanced for observations on physical parameters for CSRB.
2. Data on germplasm evaluation over years may be pooled for pest resistance. Germplasm data should be rearranged and pest data to be presented in single table.

Bhubaneswar

- Pruning may be adapted in old trees under insecticides trial of TMB to facilitate pest observations. The expertise of DCR may be taken for rejuvenation.

Hogalagere

1. Significance of 'r' values to be indicated in correlation table.
2. Species of thrips to be ascertained from NBAIR, Bengaluru.

Jagdalpur

1. Observations on coccinellids preying on insect pests need to be visually documented.
2. Species of mealy bug should be identified from NBAIR, Bengaluru.

Paria

1. Germplasm screening for pest incidence to be taken up.

Kanabargi

1. Entomology trials may be kept in abeyance until an Entomologist joins or PC may explore possibilities to engage entomologists from nearby centres of UHS, Bagalkot.

**Programmes allotted to different AICRP Cashew centers for
the next year – 2018-19**

Programmes		Centres
Ent.1. Chemical Control of pest complex in cashew.		
Expt 3. Evaluation of insecticides for the control of TMB and other insect pests		Bapatla, Bhubhaneswar, Hogalagere, Darisai, Jhargram, Kanabargi, Jagdalpur, Madakkathara, Paria, Vengurla and Vridhachalam.
Ent. 2. Control of Cashew Stem and Root Borers		
Expt. 2. Curative trials		Bapatla, Bhubhaneswar, Hogalagere, Jhargram, Jagdalpur, Madakkathara, Vengurla and Vridhachalam.
Ent. 3.	Influence of biotic and abiotic factors on the incidence of pest complex of cashew	Bapatla, Bhubhaneswar, Hogalagere, Darisai, Jagdalpur, Jhargram, Madakkathara, Paria, Vengurla, Vridhachalam and Kanabargi.
Ent. 4.	Screening of germplasm to locate tolerant / resistant types for major pests of the region	Bapatla, Bhubhaneswar, Hogalagere, Jagdalpur, Jhargram, Madakkathara, Vengurla and Vridhachalam.

TECHNICAL SESSION – V : INTERACTION BETWEEN DEVELOPMENT DEPARTMENTS & RESEARCH CENTRES

- Chairman** : Dr. Abraham Verghese, Former Director, ICAR-NBAIR, Bangalore
- Co-Chairmen** : Dr. M.G. Nayak, Acting Director, DCR, Puttur
- Rapporteurs** : 1. Dr. M.S. Paikra, Scientist (Hort.), AICRP on cashew, Jagdalpur, Chattisgarh
2. Dr. N. Aswathanarayana Reddy, Scientist (Ent.), AICRP on Cashew, HREC, Hogalagere

Chairman of the technical session on “Interaction of scientists, farmers, processors and entrepreneurs” Dr. Abraham Verghese, Former Director, ICAR-NBAIR, Bangalore started the session with introductory talk about objective of having this interaction session with farmers, processors and entrepreneurs with cashew scientists of different states. Dr. M.G. Nayak, Director (Acting), ICAR-DCR, Puttur welcomed the dignitaries Mr. Seetharam Shetty, Director, SKDRDP, Puttur; Mr. Prakash Natelkar, Managing Director, Karnataka Cashew Development Corporation, Mangalore; Dr. Yadukumar, Former Principal Scientist, ICAR-DCR, Puttur; Mr. Harish, DFO, Department of Forest, GOK; Officer In-Charge, All India Radio, Mangalore; all the cashew growers, processors and entrepreneurs, press and media persons. The Director also welcomed all the faculty scientists of ICAR-Directorate of Cashew Research, Puttur and scientists of AICRP on cashew to the session.

Dr. Mohana, G.S., Senior Scientist (Gen. & Cyto. Gen.) & Scientist in-charge, PC cell, ICAR-DCR, Puttur presented power point presentation on “Development of an exclusive android application for cashew cultivation” for easy dissemination of the cashew cultivation information. This android smart phone app will be prepared and will be ready for use in the coming year.

Mr. Seetharam Shetty, Director, SKDRDP, Puttur has informed the house that they have distributed 42,000 cashew grafts during 2016-17 under area expansion programme in their NGO. They also organized training programmes on “Scientific cultivation of cashew” during distribution of grafts with the help of scientists from ICAR-DCR, Puttur.

Mr. Prakash Natelkar, IFS, Managing Director, KCDC, Mangalore informed that in Karnataka 26,000 ha of area is under KCDC and maintenance of these established cashew orchards by the KCDC is become very difficult with existing labour force, therefore it is informed to develop mechanized way of maintaining the cashew orchards for pruning and weeding etc in near future. He also stressed on inclusion of forest plant species and medicinal plants in AICRP on cashew intercrop experiments.

Mr. Subhash Rai, Progressive farmer has started cashew cultivation in 2013 onwards in 14 acres. He named his cashew farm as “Sweda Bindu”. He allowed cashew plants to yield in first year itself and is under observation for its further performance in subsequent years. He has different density systems of cashew planting to know the suitability of cashew varieties. He opined that Bhaskara, Ullal-1 & 3, VRI-3 varieties needs light pruning compared to other varieties and severe pruning drastically reduced the nut yield. Organizing farmers to farmers training programmes will help cashew growers to sharing their field experiences easy and convincing. He shared his experience that VRI-3 responds very well for high pruning and with higher nut yield. Whereas the variety Bhaskara when severely pruned plants had high incidence of TMB, high vegetative growth and low cashew nut yield. In plants where more scion sticks are collected yielded very low nut yield compared to other plants without removal of scion sticks for nursery purpose.

One of the cashew nursery owner Mr. Jayarama Kedilaya opined that optimal cutting of scion sticks usually increases sprouting / lateral shoots there by it increases nut yield. In one acre cashew area only 200 scion sticks has to be collected for obtaining normal nut yield otherwise heavy reduction in nut yield occurs. The UHDP system is highly labour intensive and uproot alternate plants after 7-8 years by retaining a minimum of 200-250 plants/ha for normalizing the spacing and nut yield in HDP plantations.

Mrs. Shyamala Shasthri, Cashew apple processor from Mangalore has started preparing different products like jam, pickles, concentrates etc initially from wild fruits (Amla, Carambola, Jamun etc) on small scale. The brand name of her products is "Prakruthi Foods". She had attended the training programme on utilization of cashew apple and got trained on procedures and skill involved in preparation of cashew apple jam and RTS etc. Dr. Lakshmana, Professor & Head, Agriculture Research Station, Ullal (Mangalore) has guided her regarding purchase of required machineries for this purpose. Afterwards she started preparing different cashew products and samples were given to relatives and neighbours for organoleptic evaluation. The feedback of the neighbours is very encouraging and positive to her products. The indent for the same products start coming well in advance in huge numbers. She prepared 50kg of Cashew apple Jam and 100kg of cashew apple pickles and exhibited in one of the public exhibition in Mangalore and she got the good feedback from the purchaser. There are 300 customers who used this products indented for some more quantity which increased her confidence. Now she is preparing 100-200kgs of cashew pickles every year for regular customers. She needs information and guidance on preparation of RTS from cashew apple and problems associated with it from scientific faculty.

Mr. P.K.S. Bhat, Former President, All India Arecanut Growers Association, Puttur opined that pruning system in cashew is very good technology from scientists of ICAR-DCR, Puttur. Earlier this type of pruning technique was there in grapes and cocoa, but it is good to see this type of pruning technology in cashew. This will revolutionize the cashew cultivation in Karnataka hence great appreciation to the efforts made by Dr. M.G. Nayak, Director (Acting), ICAR-DCR, Puttur. Farmers need studies on zero or natural cultivation and secured market prices for the nuts, and value addition for cashew apple. He also observed that non yielding plant of jack has started yielding after pruning of the shoots.

Dr. Yadukumar, Former Principal Scientist, ICAR-DCR, Puttur said that the cashew plants exploited for increased scion should have minimum 50% canopy. The HDP system (4 m x 4 m, 5m x 5m) recommended for farmers to boost the nut yields, but they are not following proper care/management practices to get sustainable nut yields hence the yield reduction is noticed in HDP plantations. The less vigour cashew varieties need protective irrigation/drip irrigation to get expected nut yields and vice versa.

Dr. M.G. Nayak, Director (Acting), ICAR-DCR, Puttur has replied to the queries of Mr. Subhas Rai about HDP and collection of scion sticks and reasons for nut yield reduction. He also mentioned that 7.93 lakh tons of cashew has been produced and exported from India during last year (which is 10% increase in cashew production than previous year). The CAMPCO company has decided to procure cashew from next year like cocoa in Karnataka hence marketing for the cashew may become still easier.

The session chairman Dr. Abraham Verghese has thanked Dr. M.G. Nayak, Director (Acting), ICAR-DCR, Puttur for the efforts made in development of pruning techniques in cashew during his remarks. He mentioned the use of Mucuna seeds as intercrop in cashew orchards for weed suppression. He also appreciated Mrs. Shyamala Shasthri for efforts made in utilization of cashew apple. The AGM-2017 ended with vote of thanks by Dr. Mohana G.S., Sr. Scientist & Scientist In-charge, PC Cell, ICAR-DCR, Puttur.

PLENARY SESSION

Chairman	: Dr. Abraham Verghese, Former Director, ICAR-NBAIR, Bangalore
Co-Chairmen	: Dr. M.G. Nayak, Acting Director, DCR, Puttur
Rapporteurs	: 1. Dr. M.S. Paikra, Scientist (Hort.), AICRP on cashew, Jagdalpur, Chattisgarh 2. Dr. N. Aswathanarayana Reddy, Scientist (Ent.), AICRP on Cashew, HREC, Hogalagere

The session was chaired by Dr. Abraham Verghese, Former Director, NBAIR, Bengaluru, in the presence of Dr. M. G. Nayak, Director (Acting) and Project coordinator, AICRP on Cashew and the scientist in charge PC cell, Dr. G.S. Mohana, Senior Scientist, DCR, Puttur.

During the meeting, the proceedings of different technical sessions were presented :

- Dr. Umamaheswar Rao, Scientist (Hort.), CRS, Bapatla, A.P., has presented the proceedings of Technical Session-I Crop Improvement. The identified AICRP centers for conducting new MLT with bold nut types has to procure the planting material/grafts from ICAR-DCR, Puttur once the grafts are ready for planting. The cashew growers expressed their opinion that during our ancestor's period 40-50 kg/tree yielding trees were present, but they were dried now so we expect such varieties to be breed in next future. The cashew plants with either protective irrigation or drip irrigation yields more compared to cashew under rain fed condition. The cashew grower's need farmer friendly pest management practices without using any agrochemicals. The raising of soil at the base of cashew plants has increased cashew nut yields compared to cashew plants without raised soil at rhizosphere region.
- Mr. Subhas Rai, Progressive farmer, Puttur has grown cashew under normal density, HDP & UHDP systems of planting. He shared his experience that VRI-3 responds very well for high pruning and with higher nut yield. Whereas the variety Bhaskara when severely pruned plants had high incidence of TMB, high vegetative growth and low cashew nut yield. In plants where more scion sticks are collected yielded very low nut yield compared to other plants without removal of scion sticks for nursery purpose.
- The nursery farmer opinioned that optimal cutting of scion sticks usually increases sprouting / lateral shoots there by it increases nut yield. In one acre cashew area only 200 scion sticks has to be collected for obtaining normal nut yield otherwise heavy reduction in nut yield occurs. The UHDP system is highly labour intensive and uproot alternate plants after 7-8 years by retaining a minimum of 200-250 plants/ha for normalizing the spacing and nut yield in HDP plantations.
- The chairman of the session informed all the AICRP centre's to follow proper plant quarantine measures before sparing any germplasm accessions/varieties to other centers. Test the soil in grafts covers for presence of nematodes, and thrips, mealy bug, shoot borers on aerial plant parts before sparing of the material to others.
- Dr. Mini Poduval, Horticulturist, AICRP on cashew, RRS, Jhargram (West Bengal) has presented the proceedings of Technical session-II Crop management. The chairman for crop management technical session was Dr. K.V. Peter, Former Vice Chancellor, Kerala Agriculture University. He stressed more on HDP system of planting, analysis of soil, water and leaf in nutrient management experiments compulsorily, workout land and yield

equivalent ratios for unit area of plantation, HDP observational trial should be concluded after 10th harvest in all the centres. Lime application should be followed by Bhubaneswar and Madakkathara centres to correct soil PH in nutrient management trials. The Director & PC, ICAR-DCR, Puttur should visit AICRP on Cashew, Paria (Gujarath) centre and review the progress of Paria centre with respect to establishment and implementation of all allotted AICRP experiments.

- Dr. Jayaprabhavathi, Scientist (Ent.), AICRP on cashew, RRS, Vridhachalam (TN) has presented proceedings of Technical session-III Crop protection. The session was chaired by Dr. Abraham Verghese, Former Director, NBAIR, Bangalore. The chairman emphasized to maintain uniform number of trees per each treatment in CSRFB experiment. The different insect pests recording on cashew has to be identified with NBAIR, Bangalore for documentation purpose. The weather data and pest population data has to be correlated to develop prediction models for regional pest forecasting. The benefit cost ratio should be worked out for all the experiments to know the economic feasibility of the treatments. Two way analysis (Chi-square test) has to be followed for CSRFB experiment physical parameters data to draw valid conclusions. Photos used in presentations needs to be acknowledged.
- The chairman distributed “**Best AICRP centre**” award to “**AICRP on Cashew, RFRS, Vengurle (Maharashtra)**” based on the number of germplasm accessions conserved and evaluated, varieties released, maintenance of plots and fund utilization. The vote of thanks was delivered by Dr. G. S. Mohana, Senior Scientist, DCR, Puttur to the Hon’ble VC, Director, DCR, Puttur, Participants, Scientists and farmers.

PHOTOGRAPHS OF AGM – 2017 OF AICRP-CASHEW



Lightening of lamp by the dignitaries



Chief Guest Prof. K.V. Peter addressing the gathering



Release of Publications



Release of Technical Bulletin



Farmers/Scientists Interaction on Cashew