

# NRCS

# News Letter

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NATIONAL RESEARCH CENTRE FOR SPICES  
P. O. Box No. 1701, Kozhikode - 673 012, Kerala

## INTRODUCTION

The National Research Centre for Spices has completed 4 years of its existence in April 1990. Even during these formative years of functioning the Centre has set its foot firmly for the cause of spices research and extension by giving a definite form and shape to researches on major spices through mission oriented approach. Some more salient research highlights are below:

## RESEARCH ACHIEVEMENTS

### Spacing cum Varietal Trial in Black Pepper:

Spacing cum varietal trials conducted for a period of 3 years (1986-90) have revealed the superiority of Karimunda variety of black pepper over Panniyur-1 and Aimpirian to yield high under closer spacing i.e., 2 x 1 meter. The cumulative mean yield of Karimunda was 4097 kg/ha fresh berries.

### New System of Planting and Fertilizer Recommendation for Cardamom:

A new planting technique wherein cardamom is planted in trenches as against the conventional pit system of planting has been developed. Trench system of planting recorded significantly higher cardamom yield (202.32 kg/ha) as compared to the pit system (176.16 kg/ha). Application of 160:160:320 kg NPK/ha has resulted in increased production of capsules (262.97 kg/ha dry capsule).

### Approach Grafting:

A novel method of vegetative propagation of clove by approach grafting has been standardised with a success rate of 80 and 73% during December and August, respectively.

### New Staining Technique:

The optical brightener, Stilbyl naphtho-triazole was found to be a vital stain for staining *Phytophthora* for fluorescence microscopy.

### Disease Resistance:

*Piper colubrinum*, a wild species of black pepper has been found immune

to *Phytophthora* and resistant to nematodes.

### Gall Thrips and Black Pepper:

An increase in gall thrip infection of black pepper has been observed with increase in the altitude of the plantation. A correlation coefficient of 0.76 ( $r = 0.76$ ) has been established between the two.

### Quality Evaluation of Black Pepper and Cardamom:

Karimunda selections 180 and 200 are found to have high piperine, oleoresin and essential oil content.

Acc. Nos. 81, 85 and 160 of cardamom are rich in oil content and flavour ratio.

### Drought Resistance in Black Pepper:

Karimunda selections 51 and 114 are found to be relatively tolerant to drought.

### High Production Technology in Cardamom (HPT):

A viable high production technology based on the following agro-techniques has been developed at the

NRCS Cardamom Research Centre, Appangala.

- \* Use of high yielding planting materials such as Cl.37, M-1 etc.
- \* Shade regulation permitting 50-60% filtered light.
- \* Appropriate season of planting.
- \* Timely cultural operation and fertilizer application.
- \* Irrigation as well as soil and moisture conservation.
- \* Proper drainage.
- \* Maintaining adequate bee colonies.
- \* Timely plant protection measures.
- \* Timely harvesting and processing.

The highest yield recorded by adopting the HPT is 530 kg/ha dry capsule.

#### GERMPLASM CONSERVATION AND COLLECTION

NRCS Scientists, Mr. Johnson K. George and Dr. B. Sasikumar, in collaboration with the scientists of NBPGR Regional Centre, Trisoor (Mr. K. C. Velayudhan and associates) undertook an expedition to Western Ghat forests in September 1990 for collecting germplasm of black pepper and other spices. Sabarimala, Pampa, Kakki, Muzhiyar and Thenmala forest ranges were covered. A good number of black pepper germplasm were collected. *Piper harnium* was collected for the first time during the trip. Few *Curcuma* sp., and 2 new wild nutmeg species were also collected.

A short statured wild ginger closely resembling the cultivated type in all aspects was also collected from Pon-nambalamedu peak (Sabarimala.)

Another germplasm collection trip was undertaken to the North-east

India by Dr. B. Sasikumar and Mr. Johnson K. George, Scientists, Genetics Section of NRCS during October, 1990. Sixteen accessions of black pepper, 62 accessions of turmeric including a blue-black rhizome type and 63 ginger accessions were collected from the various states of North-eastern India. Air layered *Cinnamomum tamala* plant was also collected during the trip from Tripura.

#### IN PIPELINE

A new high yielding cardamom variety developed at the NRCS research centre, Appangala is awaiting release. This new variety is developed from the mother clone Cl.37.

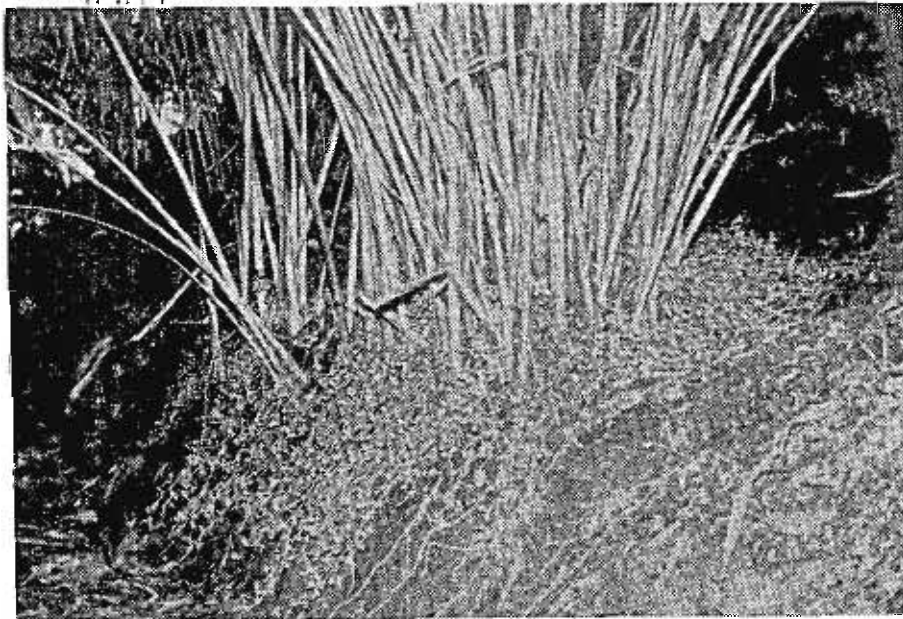
#### ALL INDIA COORDINATED RESEARCH PROJECT ON SPICES

Dr. S. Edison, Project Coordinator (Spices), visited north eastern India and held discussions with the

Director, ICAR Research Complex for NEH Region, Shillong regarding the research components on spices for Mizoram and Sikkim for implementation during the VIII Plan period and with the Director of Agriculture, Govt. of Sikkim and Assam about research and development programmes on spices.

The spices transfer of technology programme for the State of Tamil Nadu has been discussed with Director of Agriculture, Govt. of Tamil Nadu. The export statistics and trade promotion of spices were evaluated, discussed with the officials of Spices Board, Kochi.

One exploratory survey was made for the tree spices areas in Kanyakumari and Tirunelveli districts of Tamil Nadu and assessed the research needs for including in the VIII Plan documents as directed by DDG (Hort). The VIII Plan proposal regarding AICRP on Spices was finalised and submitted to ICAR after getting concurrence from ADG(PC) and DDG(Hort).



New cardamom variety of NRCS awaiting release

## LATEST IN RESEARCH

- NRCS scientists have established for the first time the rate of autogamy in black pepper. It is also conclusively proved that rain water is not essential for pollination in black pepper.
- A new technique of multiplication of black pepper directly from single nodes taken from field grown vines has been developed by the scientists of NRCS. This new method will be a boon to small and marginal farmers.



Rooted single node cutting produced by the new method (left) and 3 noded control (right)

## PARTICIPATION IN SYMPOSIA SEMINARS AND TRAINING

1. Computer application in library and information activities, INSDOC, New Delhi, 20 August-14 September, 1990 -- Jose Abraham.

2. Short term course on Human Resources Management, 20 August-1st September, 1990, NAARM, Hyderabad -- K.V. Ramana.
3. Farmers' Seminar on Pepper and Cardamom, 29-30, August 1990; Sirsi -- A. Ramadasan.
4. UPASI Workshop on Black Pepper, September 4, 1990, Coonor -- A. Ramadasan.
5. Course on 'Planning and Implementation of Crop Production Programme', 29 October-3, November, 1990, organised by MANAGE, Hyderabad -- B.N. Reddy.
6. Second National Conference on Mycorrhiza (under the auspices of Mycorrhiza network Asia founded by IRDC, Canada) organised by the University of Agricultural Sciences, Bangalore, 21-23 November, 1990. A research paper entitled "Suppressive effect of Vesicular-arbuscular Mycorrhizae on *Meloidogyne incognita* infection in black pepper (*Piper nigrum* L.)" was presented -- M. Anandraj, K.V. Ramana & Y.R. Sarma.
7. Seminar on 'Spices Production Technology for Wynad', November 24, 1990, Kalpetta -- Y.R. Sarma, S. Devasahayam, B. Krishnamoorthy & K. Nirmal Babu.
8. International Seminar on New Frontiers in Horticulture, 24-28 November, 1990, Bangalore -- P.N. Ravindran.
9. Ninth Plantation Crops Symposium, (PLACROSYM-IX) held at Bangalore, 5-7 December, 1990 -- A. Ramadasan, Y.R. Sarma, A.K. Sadanandan, B.N. Reddy, K.V. Ramana, B. Krishnamoorthy and T. John Zachariah.

Presented two research papers: (i) Sex problems in nutmeg, morphological and chemical studies -- B. Krishnamoorthy, T. John Zachariah, P.N. Ravindran and A. Gopalam, (ii) Aroma profile of selected germplasm accessions in cardamom (*Elettaria cardamom* M.) -- T. John Zachariah.

## MEETINGS

1. Annual Meeting of the Society for Mycology and Plant Pathology, July 5-7, 1990, Jaipur. Delivered special lecture on Present Status on Disease Management of *Phytophthora* foot rot of black pepper -- Y.R. Sarma.
2. Scientific workers conference in Horticulture organised by TNAU at Periyakulam, July 17 1990 -- S. Edison.
3. Spices Board Meeting, Kochi July 27 and September 26, 1990 -- A. Ramadasan.
4. Second Staff Research Council Meeting of the ICRI (Spices Board), Myladumpara, August 7-8, 1990. Chaired the Technical Session on Plant Physiology and Biochemistry -- A. Ramadasan. Chaired Session on Plant Pathology -- S. Edison.
5. ISO Meeting (FADC of BIS) September 9, 1990, Thiruvananthapuram -- A. Ramadasan.
6. Sectional Committee Meeting of the FADC-9, September 8-9, 1990, New Delhi -- A. Ramadasan.

7. Meeting on Research on drought in perennial crops at RRII, Rubber Board, Kottayam, September 30, 1990 -- A. Ramadasan.
8. Second meeting of Directors and Project Co-ordinators of Horticultural Division of ICAR, held at IARI, New Delhi, 15-16 November, 1990 -- A. Ramadasan & S. Edison.

#### SEMINAR HELD OFF-CAMPUS TRAINING

A seminar on high production technology of cardamom and black pepper was organised at Sirsi, Uttara Kannada district of Karnataka on 30th August, 1990, by NRCS, Kozhikode with the active cooperation of Hulgol Farmers Association, Sirsi. About 110 farmers attended the seminar. Mr. V.S. Korikanthimath, Dr. M.N. Venugopal (NRCS Cardamom Research Centre, Appangala), Dr. B.N. Reddy and Mr. M. Anandaraaj, (NRCS, Kozhikode) participated in the seminar.

#### TRAINING ACTIVITIES

NRCS has organised several training programmes to acquaint the State Department of Agriculture staff, farmers and other developmental agencies with the latest system based production technologies.

A training conducted at Ramakrishna Ashramam, Quilandy in June-July 1990 was attended by about 50 farmers. The participants were imparted training on rapid multiplication technique of black pepper, nursery management in spices and plant protection aspects.

A training programme in nursery management on cardamom and black pepper was conducted at NRCS Cardamom Research Centre, Appangala during August in which three officials from Agricultural Department of Karnataka participated.

In the training programme on spices production technology conducted at NRCS, Kozhikode during 17-21 November, 1990, about 19 officials parti-

ciated from various government organizations.

A progressive farmer from Dibrugarh (Assam) was imparted training for one week on various aspects of spices production technology with particular reference to black pepper at NRCS, Kozhikode.

#### TRANSFER OF TECHNOLOGY

Under transfer of technology programmes, following activities were carried out during 1990.

Demonstration of High Productive Technology (HPT) in black pepper in 51 farmer's fields in three villages under two TTCs has been continued during this year.

A total number of 12237 root cuttings of black pepper, 1750 nutmeg grafts/seedlings, 3000 clove seedlings were supplied to departments of agriculture, Govt. of Kerala, Karnataka and Tamil Nadu, OPCRI Kasaragod and various farmers during the year 1990.

Seed capsules of cardamom CI amounting to 865 kg were supplied to Spices Board, Department of Horticulture (Govt. of Karnataka) and different farmers during the year 1990.



Sri V. S. Korikanthimath, Scientist-in-charge, NRCS Appangala station addressing farmers during off campus training at Sirsi

#### STUDY CIRCLE

Study circle met 5 times during July-December, 1990. A total of papers were approved for publication.

Dr. A.D. Damodaran, Director RRL, Thiruvananthapuram addressed

the study circle and delivered talk on 21-7-1990.

### T.V. TALK

A T.V. programme was recorded on 27th December 1990 regarding **Phytophthora** foot rot of Black pepper -- A. Ramadasan & Y.R. Sarma.

### LIBRARY

Added 130 books and 30 reprints on spices during the period. Library published July-August, 1990 issue of "Current Awareness Service on Spices and Condiments" as well as "Agri. Sci. Tit Bit", and continued to supply the content pages of the journals received, to Appangala Station. Abstracting and indexing journals were also circulated to the Regional Station.

### TECHNICAL PUBLICATIONS/REPORTS

1. Anandaraj, M., Vasantha S. and Sasikumar, B. 1990. Annual Report 1989-90, NRCS, Kozhikode pp. 61.
2. Edison, S. and Johny A. Kallupurackal, 1990. Annual Report 1989-90, AICRP on Spices, NRCS, Kozhikode pp. 187.
3. Bush Pepper, NRCS, Kozhikode.

### DEGREE AWARDED

1. Shri P.N. Ravindran, Scientist (Selection Grade) has been awarded Ph.D. degree in Botany by Calicut University for his thesis '*Black pepper and its allies.*' The work was carried out under the guidance of Dr. M.K. Nair, Director, C.P.C.R.I., Kasaragod.

2. Shri N. Ramachandran has been awarded Ph. D. degree in Botany by Calicut University for his thesis *Bio-efficacy of systemic fungicides against Phytophthora infection in black pepper (Piper nigrum L.)*. The research work was carried out under the guidance of Dr. Y.R. Sarma, Scientist (Sel. Grade), Plant Pathology, N.R.C.S., Kozhikode.

3. Shri K.S. Sreekumaran, Junior Stenographer was awarded M.A. (Lit.) degree by the University of Poona in English Language and Literature.

### DST FELLOWSHIP

Dr. T. Varghese Thomas has been awarded Research Associateship by the Science Technology and Environment Department (STEC), Government of Kerala for conducting studies on "*In vitro* and *in vivo* screening for drought tolerance in black pepper". He is working under the guidance of Dr. A. Ramadasan, Director, NRCS, Kozhikode.

### FAC MEETING

During the second half of the year 1990, Farm Advisory Committee (FAC) met two times. On 16-10-90, the meeting was held at NRCS Research Farm, Peruvannamuzhi. Dr. A. Ramadasan, Director, chaired the meeting. Besides the scientists and Farm Superintendent, Asst. Finance & Accounts Officer also participated. The committee reviewed the proceedings of the previous meeting held on 29-6-1990. A second meeting was held on 3-12-1990 at NRCS, Kozhikode.

### I. J. C. :

The Institute Joint Council was held at NRCS Research Centre, Appangala on 20th September, 1990 under the Chairmanship of Dr. A. Ramadasan, Director. Many of the pend-

ing issues regarding service matters and welfare measures were discussed and resolved.

### INTERNATIONAL SOCIETY FOR SPICES

A professional International Scientific Society of spices research and development workers was formed with NRCS (National Research Centre for Spices) as its headquarters. This Society known as the International Society for Spices (ISS) aims to provide a common forum for the workers of spices, aromatic crops and allied plants to come together for exchange of ideas and will try to develop the concept of a common brotherhood among research and developmental workers, producers, traders and users of spices and aromatic crops.

The society will be publishing the **International Journal of Spices and Aromatic Crops (IJOSAC)**, the first issue of which will be out in January 1992.

The ISS will be collaborating with other agencies for organising national and international seminars and symposia.

Membership in ISS is open to any one interested in research, development, trade, cultivation and use of spices and aromatic crops.

Contact: Dr. P.N. Ravindran, Secretary, ISS, National Research Centre for Spices, (NRCS), P.O. Box 1701, Kozhikode-673 012, Kerala, India.

*The right to err, which means the freedom to try experiments, is the universal condition of all progress.*

—Mahatma Gandhi

## PERSONNEL

### Transfer

Name & Designation	From	To
Sri. T. Gopinathan Asst. Fin. & Accts. Officer	OMFRI, Kochi	NRCS, Kozhikode

### Promotions:

Sl. No.	Name	Place of posting	Present position	Promoted position	With effect from:
1.	Mr. M.K. Appaiah Sr. Farm Asst.	Appangala	T4	T5	01-07-1990
2.	Mr. M.M. Augusthy Tech. Asst.	Peruvanna- muzhi	T-II-3	T4	01-01-1990
3.	Mr. K.T. Mohammed Jr. Tech. Asst.	,,	T2	T-I-3	01-01-1990
4.	Mr. V. Sivaraman Jr. Tech. Asst.	,,	T2	T-I-3	01-01-1990
5.	Mr. N. Chandra- hasan, Driver	Chelavoor	T2	T-I-3	01-07-1990
6.	Mr. S. Gnanakkan Jr. Tech. Asst.	Peruvanna- muzhi	T1	Granted 2 adv. increments	01-01-1990

### Weddings:

1. Sri R. Ramakrishnan Nair, Scientist (Genetics & Cytogenetics), NRCS, Kozhikode with Smt. Leela, Scientist (Org. Chemistry), IIHR, Bangalore (26-10-1990).
2. Sri Santhosh J. Eapen, Scientist (Nematology), NRCS Cardamom Research Centre, Appangala, with Smt. Shiny (27-12-1990).

Published by Dr. A. Ramadasan, Director, NRCS, Kozhikode

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