

NRCS

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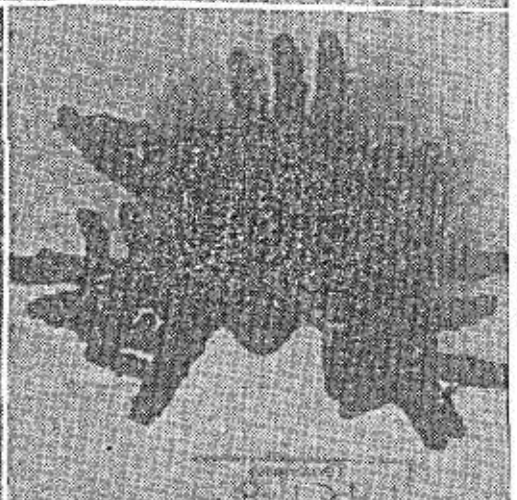
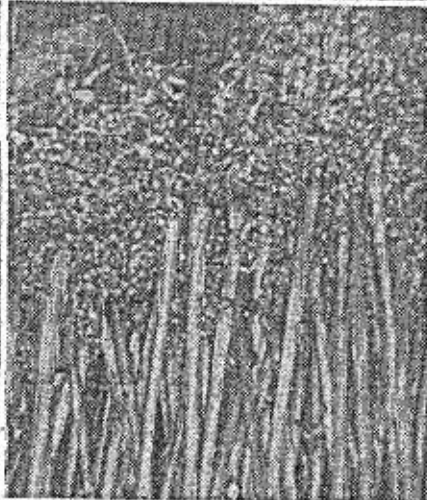
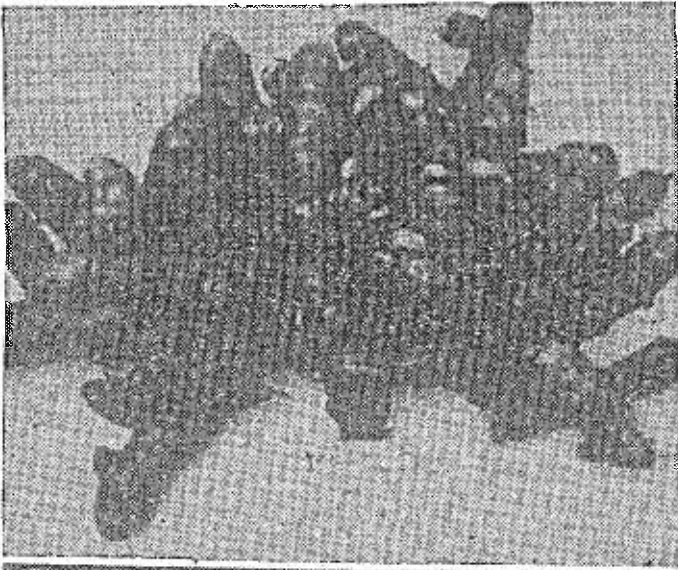
NATIONAL RESEARCH CENTRE FOR SPICES
P. O. Box No. 1701, Kozhikode - 673 012, Kerala

HALF A DECADE OF RESEARCH ON SPICES AT NRCS

The National Research Centre for Spices has completed 5 years of service to the farming community by April 1991. During the past 5 years the Centre has scored many important gains to its credit. The most salient gains are:

- Developed / identified 4 high yielding varieties of black pepper viz., Sreekara (KS-14), Subhakara (KS-27), Aimpirian and Ottapalackal-1 (NT Line)
- Released 3 high yielding turmeric varieties viz., Suvarna (PCT-8), Suguna (PCT-13) and Sudarsana (PCT-14)
- Developed one high yielding Cardamom variety viz., Coorg Selection-1
- Built up a very large collection of major spices germplasm especially of black pepper, ginger, turmeric, tree spices and cardamom
- Elucidated the breeding behaviour of black pepper
- Developed high production technology (HPT) for black pepper and cardamom
- Identified high quality lines of black pepper and cardamom
- Co-ordinating research on spices in the country through AICRP on spices
- Identified the major pests of black pepper and evolved suitable control measures for them
- Two field tolerant (against *Phytophthora*), open pollinated, black pepper lines have been identified
- Developed a disease management technique for foot rot disease of black pepper
- Epicotyl grafting technique for obtaining female trees of nutmeg was perfected further
- Identified 9 elite progeny lines of cinnamon having high leaf and bark oil content as well as few elite trees of nutmeg
- Developed a new technique of multiplication of black pepper directly from single nodes of runner shoots
- Standardised the micropropagation of ginger from leaf callus
- Drought tolerant lines of black pepper have been identified
- Distributed large quantity of planting materials of mandate spices

New Spices Varieties of NRCS



Revised Mandate for NRCS

Research priorities of the National Research Centre for Spices were reviewed by a high level committee recently at the ICAR Head Quarters, New Delhi and a revised mandate has been fixed.

As per the revised mandate, henceforth the National Research Centre for Spices will conduct and co-ordinate need based research on all aspects of mandate spice crops and serve as a clearing house for all information on these crops. The National Research Centre will also produce nucleus planting material of the mandate spice crops. Major research programmes will be oriented towards:

- *Establishing a global gene bank for spices*
- *Conserving, describing and evaluating germplasm*
- *Study of genetic architecture and inheritance pattern*
- *Characterisation of drought tolerance and physiological, biochemical as well as biotechnological approaches to identify drought tolerant cultivars*
- *Micropropagation and morphogenesis as well as biochemistry and genetic transformation of plant cell and tissue cultures*
- *Identification of low input responsive genotypes for use in sustainable cropping systems*
- *Integrated and biocontrol approaches for pests and disease management and control*
- *Epidemiology, population dynamics and chemotherapy of major pests and*
- *Investigation on quality attributes of spices*



NRCS SHIFTED TO THE NEW BLOCK

In yet another major step in the growth of the National Research Centre for Spices, the offices of the Director, Project co-ordinator and Scientists are shifted to the new building built up on a hillock overlooking pretty small, contiguous hills, lush green coconut grove and paddy fields in the Chelavoor campus adjacent to the old building, pending formal inauguration.

RESEARCH ACHIEVEMENTS

* VAM boosts growth of black pepper cuttings:

Incorporation of VAM into the rooting media resulted in increased rooting percentage and subsequent growth of both black pepper laterals and runner shoots.

* Potash (K) and Cardamom yield:

A significant correlation was obtained between soil exchangeable K and cardamom yield ($r = 0.47^{**}$).

* Drought tolerant black pepper lines:

Karimunda selection-69 performed comparatively better to Kottanadan line (1495) under field conditions in the second year of evaluation for drought tolerance.

* Quality evaluation of cardamom

Evaluation of Clone 37 selections of cardamom for quality attributes revealed that Selection 800 had 10.5% oil. This selection also possesses high cineole content.

GERMPLASM CONSERVATION AND COLLECTION

Mr. Johnson K. George, Scientist (Genetics), NRCS, along with Mr. K. C. Velayudhan, Scientist (SG), NBPGR Regional Centre, Trissur, undertook a joint expedition to the forest ranges of Makkutta, Hoddur, Moornad, Bellamavatty, Bhangamandala, Thalakovari, Jodpala etc. (Western ghat forests) in March 1991 for germplasm collection of black pepper. A total of 57 wild accessions were collected during the trip. *Piper bababudani* (?) was collected for the first time from Thalakovari.

Two wild accessions of nutmeg viz., *Myristica andamanensis* and

Knema andamanica (Courtesy: Dr. M. K. Nair, Director, CPCRI, Kasaragod); one wild cinnamom from Meghalaya, two accessions of *cinnamom tamala* from Bihar and another wild nutmeg from Calicut were added to the tree spices germplasm.

Dr. B. Sasikumar, Scientist, (Plant Breeding) NRCS, collected 9 turmeric accessions from Andhra Pradesh during a survey cum germplasm collection trip carried out in February, 1991.

Another significant achievement in germplasm enrichment of ginger was the addition of a stable tetraploid line, 'cv. Manantodi' from Botany Department, Kerala University, Kariavattom. This is in addition to the other tetraploid line of ginger 'cv. Maran' obtained from the same source last year and undergoing yield evaluation at NRCS, Kozhikode and Muvattupuzha (Farmers' field).

IN PIPELINE

A new high yielding selection of black pepper namely Ottaplackal-1 (NT-Line) is awaiting release. This cultivar is tolerant to root knot nematode (*M. incognita*). The mean yield of this cultivar is 4.7kg fresh berries/vine/year.



Latest black pepper variety of NRCS

TRANSFER OF TECHNOLOGY

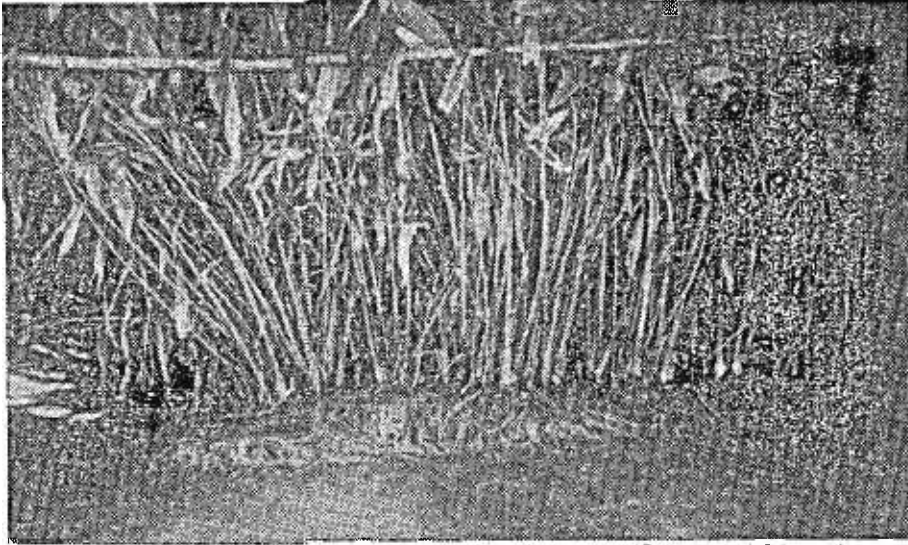
Under the transfer of spices technology programme a one day training course was organised at NRCS Research Farm, Peruvannamuzhi on 9-4-91. Twenty five officers from Department of Agriculture, Government of Kerala, participated in the programme. Drs Y. R. Sarma, B. N. Reddy, A. K. Sadanandan and K. V. Ramana, Scientists, NRCS, Kozhikode, dealt with the various aspects of nursery management technique of black pepper.

Mr. D. D. Nagwekar, Research Officer, Regional Coconut Research Station, Bhatye (Maharashtra) was given training in cinnamom bark peeling from 23rd-24th April '91 at NRCS, Kozhikode.

Another training programme on nursery management of spices was organised from 3-5 June '91 at NRCS. Two officials from Department of Horticulture, Government of Karnataka and one from Maharashtra attended the training.

LATEST IN RESEARCH

- A quick and more profitable method for proliferation of suckers in cardamom was developed at NRCS Cardamom Research Centre, Appangala to generate more number of planting materials (Units) over time and space. This method also ensures good yield of cardamom capsules. A high density planting (9259 plants/ha) in trenches with a spacing of 1.8 x 0.6m under controlled overhead shade gave an average of 32-42 tillers/plant



Tillering and rooting pattern in rapid multiplication of Cardamom.

after 12 months of planting giving rise to 16-21 individual planting units, thus giving a very high rate of planting units. In this method a dry cardamom yield of 1759.2 Kg/ha was obtained within 20 months of planting.

- Direct plant regeneration from inflorescence and ovary tissues of ginger has been achieved at NRCS, Kozhikode.

EXPLORATORY SURVEY FOR SPICES CULTIVATION IN NON TRADITIONAL AREAS

NRCS Scientists, Dr. P. N. Ravindran and Dr. A. K. Sadanandan visited Kalimpong and Siliguri areas of West Bengal and Poornia district of Bihar during 2-12 April 1991 to explore the possibility of cultivation of black pepper, nutmeg, clove, cinnamon, ginger and turmeric in those regions. The survey was taken up at the instance of West Bengal Comprehensive Area Development Corporation and Government of Bihar.

TURMERIC SURVEY IN ANDHRA PRADESH

- A team of scientists from NRCS comprising Dr. B. N. Reddy, Scientist SG (Agronomy), Dr. T. G. Nageswara Rao, Scientist SS (Plant pathology) and Dr. B.

Sasikumar, Scientist (Plant Breeding) undertook a survey from 16-26th February 1991 in Guntur; Karimnagar and Nizamabad districts of Andhra Pradesh, in order to study the constraints for high productivity and identify the areas of strategic research priorities of turmeric cultivation. The team with the active co-operation of scientists of Andhra Pradesh Agriculture University and officers of State Department of Agriculture (Andhra Pradesh) visited the turmeric fields in different villages. A total of 25 villages were covered in the three districts cited above. About 50 farmers were personally interviewed to get the first hand information about the present status of turmeric cultivation and problems confronted with in achieving higher yield. Soil and diseased plant samples from the turmeric fields were collected for analysis. The information on marketing was collected from 2 important turmeric markets of



A view of Turmeric crop in Andhrapradesh

the country viz., Duggirala and Nizamabad. Based on the survey, the following constraints have been identified for increasing the productivity as well as area expansion.

Constraints for Higher Productivity

1. Rhizome rot and leaf diseases
2. Lack of appropriate high yielding, pests and disease resistant varieties
3. Lack of availability of quality planting material due to the absence of organised seed supplying agencies
4. Irrigation

Constraints for area Expansion

1. Frequent fluctuation in prices
2. Lack of local regulated market
3. Competition for area with more remunerative crops like vegetables, sugarcane etc.
4. Lack of technical awareness.

PARTICIPATION IN SYMPOSIA SEMINARS AND TRAINING

1. Dr. A. Ramadasan, Director, NRCS, participated in the one day seminar on black pepper on 2-4-'91 at R R L, Thiruvananthapuram.
2. Dr. B.N.Reddy, Scientist (SG) attended a training course on "Drip and springler irrigation system design and layout" sponsored by USAID at CWRDM, Kozhikode from 7-1-'91 to 25-1-'91.
3. Drs. Y. R. Sarma, K. V. Ramana, S. Devasahayam, M. Anandaraj and T. G. Nageswara Rao, NRCS scientists, participated in the National Seminar on Biological Control in Plantation Crops held at Rubber Research Institute of India, Kottayam, during 27-28th June, 1991. Sri. Balakrishnan Panayamthatta and Sri. N. M. Usman, Research Associates (Plant pathology) also attended the seminar. Sri. S. Devasahayam, Scientist (SG), Entomology presented a paper entitled "*Montandoniola morganesi* Puton-A potential biocontrol agent of *Liothrips karny* Bagnall infesting black pepper" in the seminar.
4. Sri. B. Krishamoorthy, Scientist (SG), Participated in the "Spices Day" programme organised by TNGDNAU at Horticultural Research Station, Yercaud, Salem on 15-2-'91 and delivered a talk on 'Research Activities of NRCS Kozhikode'. He also participated in the 'Kharif pre-season training 1991-'92' organised by Government of Tamil Nadu at Kanyakumari on 4-4-'91 and gave a talk on 'Pepper and tree spices.'
5. Sri. S. Devasahayam, Scientist (SG), Entomology attended the Summer Institute on 'Host plant resistance to insect pests and its application in insect pest management' at TNGDNAU, Coimbatore from June 6-25, 1991.
6. Sri. M. M. Augusty, Technical Assistant (T-4), attended an Agrometeorological training course (core course) at Indian Meteorological Institute, Pune from 15-4-'91 to 25-4-'91.
7. Sri. A.P. Sankaran, Assistant Sri. K.S. Sreekumaran, Junior Stenographer, and Sri. P. F. Janardhanan, Jr. Clerk attended Administrative training at CPCRI Regional station Kayangulam from 17-6-'91 to 24-6-'91.

MEETINGS

1. FADC Meeting, BIS, Spices Board, Kochi, 21-1-91—Dr. A. Ramadasan.
2. ICAR Regional Committee meeting, Thiruvananthapuram, 13-14 Feb' 1991—Dr. A. Ramadasan and Dr. S. Edison.
3. Second meeting of the Forum for Increasing Export of Spices, Spices Board, Kochi, 25-2-91—Dr. S. Edison: Presented a paper entitled "Stepping up productivity of Spices".
4. Meeting on Spices Export Strategies at Spices Board Kochi, 7-3-91—Dr. A. Ramadasan.
5. Annual Staff Research Council Meeting, CPCRI, Kasaragod 21-4-'91—Dr. A. Ramadasan.
6. Cashew Varietal Release Committee Meeting, CPCRI Kasaragod 22-4-1991—Dr. Edison.
7. R & D Meeting, Spices Board Kochi, 8-5-'91—Dr. A. Ramadasan.
8. 14th Spices Board Meeting Spices Board, Kochi, 9-5-'91—Dr. A. Ramadasan.
9. First Technical Advisory Committee meeting of Sugenghagiri Cardamom Project Wynad, 2-5-'91—Dr. S. Edison.
10. AIR Calicut, Advisory committee meeting held at Malappuram on 5-6-'91—Dr. A. J. Sadanandan.

STAFF RESEARCH COUNCIL MEETING 1991

The Annual Staff Research Council (SRC) meeting of NRCS was held during 29-30th May, 1991 at NRCS, Kozhikode. Dr. P. Rethinam, ADG (PC), chaired the sessions. The progress of 28 ongoing research Projects was reviewed and 2 new projects were approved. The meeting was attended by Director of Research (KAU), Director (CPCRI, Kasargod), Director of Agriculture (Government of Kerala), Director of Horticulture (Government of Tamil Nadu), Executive Director (Spices Board), Director (Directorate of Cocoa, Arecanut & Spices), Scientists of CWRDM, R R L (Thiruvananthapuram), Kerala Agriculture University, ICRI (Myladumpara), SBI (Coimbatore), CPCRI RS (Kayangulam) besides senior officials of Department of Agriculture (Government of Kerala) as well as Director, Project co-ordinator (Spices) and Scientists of NRCS, Kozhikode.

LIBRARY

Two issues (January-June 1991) of 'Current Awareness Service on Spices and condiments' and one of 'Agri. Sci. Tit bit' were published by the NRCS Library.

TECHNICAL PUBLICATIONS/REPORTS

1. S. Edison and Johny A Kallupurackal. Research Highlights-1991, AICRP on Spices, Kozhikode.
2. K. Nirmal Babu and J. Rema, Research Highlights - 1991, NRCS, Kozhikode.
3. Turmeric cultivation in Andhra Pradesh - A status Report, NRCS - 1991.

PUBLISHED ARTICLES

1. Devasahayam, S. 1990. Field evaluation of insecticides for the control of gall thrips *Liothrips Karnyi* Bangall on black pepper. Entomon, 15: 137-138.
2. Edison, S. and Johny A Kallupurackal, 1991. Increasing yield of spices by growing new varieties-A status report. Ind. Cocoa, Arecanut & Spices. J. XV: (April - June issue).
3. Gopalam A., T. John Zacharia, K. Nirmal Babu, A. K. Sadanandan and A. Ramadasan 1991. Chemical quality of black pepper and white pepper. Spice India, 4(4): 8-10.
4. Krishnamoorthy, B. and J. Rema, 1991. Cassia cinnamon. Spice India, 4(3): 10-12.
5. Korikanthimath, V. S., M. N. Venugopal, R. Naidu and A. K. Sadanandan. 1991. Increasing productivity of Cardamom through large scale demonstration of improved technology in Farmers' fields in Kudagu district of Karnataka. J. Plant. crops (Suppl.) 18: 393-403.
6. B. N. Reddy and Anandaraj, M. 1991. Rapid Multiplication of black pepper cuttings (Kannada). Spice India, 4(5): 4-6.
7. Sadanandan, A.K., K.S. Menon, M. Anandaraj, C. Mohandas and K. M. A. Koya. 1991. Spices Production Technology through Lab to land programme. J. Plant. crops (Suppl.) 18: 415-419.

8. Sasikumar, B. 1991. Ini Ottamuttulla Kurumulaku Thaikal, (Malayalam). Spice India, 4(3): 5-6.
9. Vasantha, S., T. V. Thomas and A. Ramadasan. 1990. Drought tolerance in black pepper cultivars: An evaluation of Physiological parameters. Ind. J. Plant Physiol., XXXIII(4): 363-366.

RADIO TALK

Sri Johnson K George: New varieties of Turmeric (Malayalam) AIR, Calicut, 13-1-1991.

Dr. J. Rema: Care of Tree spices during summer months (Malayalam) AIR, Calicut, 11-1-1991

Dr. A. K. Sadanandan: Planting pepper for increased yield. Discussion in Malayalam, AIR, Calicut

Dr. B. Sasikumar: Rapid multiplication of black pepper. Interview in Malayalam, AIR, Calicut, 26-1-1991.

DISTINGUISHED VISITORS

1. Dr. R. S. Rana, Director, NBPGR, New Delhi, visited NRCS, Kozhikode on 16-1-1991 and addressed the scientists.
2. Prof. Jack Keller of Utah State University and Dr. Sivanappan, Ex-Director, Water Technology Centre (TNAU) Coimbatore, visited NRCS, Kozhikode on 17-1-1991 and talked on the latest developments in irrigation engineering.

NEW SCHEMES SANCTIONED

Two new schemes viz., Central Sector Scheme for Integrated Programme for the Development of Spices (Govt. of India, MOA) and another adhoc scheme on Production of nucleus planting material of improved varieties of black pepper (ICAR) were sanctioned. These schemes already started operating.

INSTITUTE MANAGEMENT COMMITTEE

The first meeting of the Institute Management Committee was held at NRCS, Kozhikode on 31-5-1991 under the chairmanship of the Director, NRCS, Kozhikode. Besides the Director, 10 of the other members also participated in the meeting. Many issues

regarding the growth and development of the Institute were discussed and action plan finalised.

INSTITUTE JOINT COUNCIL

The 7th Institute Joint Council was held at NRCS Kozhikode on 26-6-1991 under the chairmanship of Dr. A. Ramadasan, Director, NRCS, Kozhikode. Pending issues regarding service matters were discussed and resolved.

GREIVANCE COMMITTEE

The meeting of the Greivance Committee of the Institute was held at NRCS, Kozhikode on 10-4-91 under the chairmanship of Dr. K. V. Ramana. All other members of the committee attended the meeting. Greivances received from the employees were discussed and some redressed.

PERSONNEL

Appointments:

Sri. Balakrishnan Panayamthatta and Sri N. M. Usman joined as Research Associates on 4-2-91 and 8-4-'91, respectively, in the scheme "Multilocational project on rhizome rot of ginger (*Z. officinale*)" operating at NRCS, Kozhikode.

Promotions:

Sri. P. Bhaskaran, S. S. Gr(Mazdoor), Peruvannamuzhi was promoted to the post of Jr. Technical Assistant (T₁) with effect from 12-3-1991 and posted at the same station.

Sri. S. Hareendrakumar, S S Gr. I (Lab. attender), NRCS, Chelavoor was promoted to the post of Jr. Clerk with effect from 27-3-'91 and posted at the same station.

Transfer:

Sri. Binami Singh, Farm Superintendent (T-6) has been transferred to NRC for Agro-forestry, Jhansi (U. P.) He was relieved on 24-3-'91.

Weddings:

1. Sri. Regy Luckose, Scientist (Genetics and Cytogenetics) NRCS, (Appangala) with Ms. Usha (17-1-'91).
2. Ms. S. Vasantha, Scientist (Plant physiology) NRCS, Kozhikode with Sri. Rajagopalan (3-2-'91).

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