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Interaction and Evaluation

Research Advisory Committee meeting

Prof. S. Kannaiyan, Chairman (RAC) stressed the need for a serious, strategic and realistic approach on research requirements in the forthcoming WTO era.

The first meeting of the newly constituted Research Advisory Committee (RAC) of the institute was held under the chairmanship of Prof. S. Kannaiyan (Former Vice Chancellor,

Major recommendations

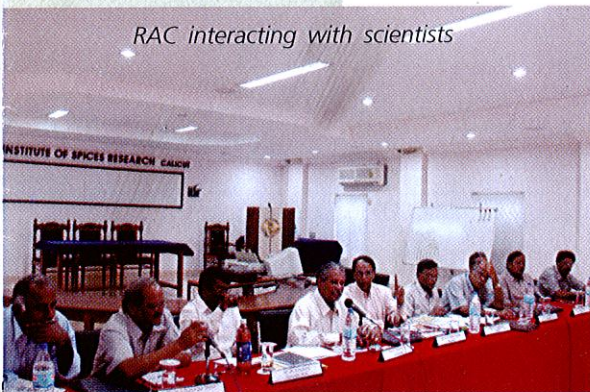
- ▶ Conserve genetic resources
- ▶ Look for patentable items
- ▶ Register new varieties
- ▶ Safeguard IPR on spices
- ▶ Develop ISO specifications

TNAU) between 31 March and 1 April 2005 at Calicut. Members Dr V.A. Parthasarathy, Dr. K. V. Ramana, Dr. A. N. Maurya, Dr. A. K. Misra, Dr. A. Manickam, Dr. Y.R.Sarma, Dr. Kuruvina Shetti, Shri. K. Mukundan, Member Secretary Dr. M. Anandaraj, Heads of Divisions and Scientists attended the meeting. All the 12 major projects comprising of 64 subprojects (48 Institute and 16 externally funded) were thoroughly reviewed. The meeting ended with an interactive session between the RAC and the Scientists on 1 April 2005.

Staff Research Council

The SRC of the Indian Institute of Spices Research, Calicut was held on 02 April 2005 under the chairmanship of Dr.V.A. Parthasarathy, Director. As many as 48 institute projects and 16 externally funded projects were reviewed during the meeting.

RAC interacting with scientists



In Focus

Dr. K. V. Ramana, Project Coordinator (Spices), Indian Institute of Spices



Research, Calicut has taken over as Assistant Director General (Plantation Crops) at ICAR – HQ, w.e.f. 28 January 2005. Dr. Ramana, a nematologist of repute was responsible for identifying nematode pests of major spices, developing nematode control measures besides his contribution in developing the nematode resistant black pepper variety 'Pournami'. Under his leadership six varieties each in major and minor (seed) spices have been identified and recommended for state/ national release under the All India Coordinated Research Project on Spices. He has also served the Indian Society for Spices in various capacities.

Prof. Dr S. Kannaiyan, Chairman (RAC, IISR) has been appointed as Chairman, National Biodiversity Authority (NBA), Government of India. Prof.



Kannaiyan was the former Vice Chancellor of TNAU, Coimbatore. Basically, he is an expert in Biotechnology and Agricultural Microbiology. A Post-Doctoral Fellow at the University of California, Davis, USA and Biotechnology Laboratory in Kings College, University of London, UK, Prof. S. Kannaiyan is also the Fellow of National Academy of Agricultural Sciences (NAAS).

*We offer our best wishes
on their new assignments*

Research Update

Several germplasm collections were made from Arunachal Pradesh and Kerala. Important ones include a *Piper* species resembling *Piper thomsoni* used in medicine, *Curcuma caesia* (black turmeric), *Piper sugandhi* type plant, wild ginger and bold cultivated ginger types.



A *Zingiber officinale* (wild) collection

Wild germplasm collections also include unique accessions of *Garcinia morella*, *P. nigrum* with

extra bold berries, *Cinnamomum gracile* and *Myristica beddomeii*.

A clove accession of dwarf stature was registered with NBPGR, New Delhi (Reg. No. INGR 04112). Also, a high oleoresin black pepper and a high oil ginger accession have been registered with NBPGR (Reg. No. INGR 04111 and 04110 respectively)

Among the elite black pepper lines characterized using molecular markers (RAPD) and morphological traits, the lines HP 105, HP 813 and Coll. 1041 have been proposed as new varieties viz., 'IISR Girimunda', 'IISR Malabar Excel' and 'IISR Thevam' respectively.

With over 2257 collections, IISR has the world's largest repository of black pepper germplasm.

Ten accessions and clonal progenies of four elite lines (A_2 , C_1 , D_1 , D_3) of cassia were evaluated for morphological, yield and quality parameters. The line D_4 recorded the highest fresh and dry bark yield.

In nutmeg, out of the three different root stocks viz., *Myristica fragrans*, *M. malabarica* and *M. beddomeii*, *M. malabarica* induced early flowering in the fourth year of planting while *M. beddomeii* enhanced vegetative growth.

In garcinia, soft wood grafting of *Garcinia xanthochymus* was standardized on 9 month old *G. xanthochymus* rootstocks with 90% success. Preliminary field evaluation revealed that the grafted plants flowered within 2 to 3 years, while seedling trees did not flower even after 7 years.

Phenylalanine ammonia lyase, the major initiating enzyme in curcumin biogenesis was purified and characterized from turmeric leaves with a subunit molecular weight ranging from 38,000 to 40,000, indicating that the enzyme is an oligomer consisting of four subunits.

Among the 37 efficient isolates of rhizobacteria inhibitory to pathogens of black pepper (*Phytophthora capsici*, *M. incognita* and *R. similis*), 12 isolates inhibited the growth of *Trichoderma harzianum* (IISR-1369). Studies have also shown

that a consortium of bacteria isolated from black pepper tissues is able to suppress nematodes like *Radopholus similis* and *Meloidogyne incognita* in black pepper nurseries.

Highlights

- ▶ Germplasm - collection and registration
- ▶ Molecular characterization of black pepper
- ▶ PAL-purification and characterization
- ▶ Bacterial consortium
- ▶ CMV on vanilla
- ▶ IDM in black pepper- Impact analysis
- ▶ PiperBase- a new database

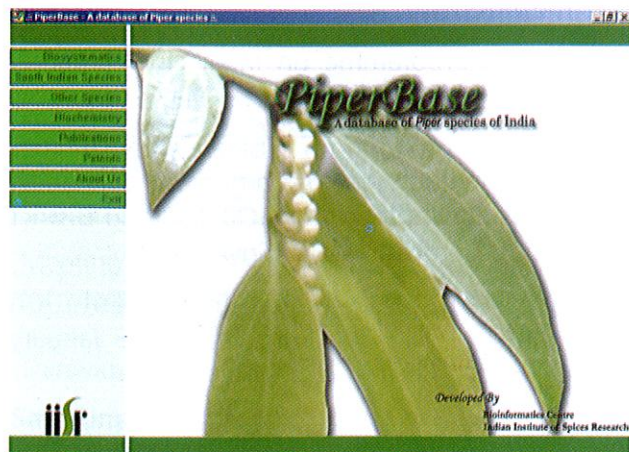
PIR, the *Phytophthora* Information Resource (<http://spices.org/index.php>) is an initiative by IISR to provide an expert system to identify the fungus up to species level using morphological data. We intend to develop PIR as a comprehensive portal on *Phytophthora* research.

Cucumber mosaic virus (CMV) causing mosaic, leaf distortion and stunting of vanilla in India was characterized on the basis of biological and coat protein (CP) nucleotide sequence properties.

A study on technology diffusion and impact of Integrated Disease Management (IDM) in black pepper indicated that farmers had high level of knowledge on alternative eco-friendly methods of disease control. The level of adoption is only in the trial stage of the diffusion process.

GIS studies indicate that the states of Orissa, Kerala and NE are environmentally suitable for ginger cultivation.

A new database, *PiperBase* has been developed by the Bioinformatics centre of IISR. This database



gives all the relevant information like taxonomy, botany, biochemistry, literature and patents on 48 *Piper* species of India. Software for identifying South Indian species is also integrated within this database.

Critical concentration of soil and foliar Zn was worked out as 2.1 mg kg⁻¹ and 27 mg kg⁻¹ respectively for ginger.

Studies on physiological parameters in black pepper showed that high yielders in general maintained higher photosynthetic rate than the low yielders.

Turmeric was found to be one of the hosts for ginger strain of *Ralstonia solanacearum*, the cause of bacterial wilt

New Projects

Anandaraj M

Molecular characterization and maintenance of National Repository of *Phytophthora*: ICAR Adhoc scheme

John Zachariah T

Production of white pepper through fermentation technology- Kerala State Council for Science, Technology and Environment, Trivandrum

Krishnamurthy K S

Climate change effects on growth and productivity of plantation crops with special reference to coconut and black pepper: ICAR network project

Leela N K

Chemical characterization of cinnamon germplasm: ICAR Adhoc scheme

Rajeev P

Central sector technology mission on integrated development of horticulture in NE states: Ministry of Agriculture and Cooperation through ICAR

Sasikumar B

Determination of purity of market samples of major spices using PCR techniques, protein profiling and HPLC methods: DBT

Strengthening the case of Geographical Indication Appellation of major spices using molecular and quality profiling techniques: ICAR Adhoc scheme

Personalia

Awards/ Honours/ Recognitions

Anandaraj M

John Zachariah T

Sasikumar B

Recognized as Ph.D. guides by Mangalore University, Nagarjuna University and Calicut University.

Sasikumar B

Nominated as Country Editor, Journal of Applied Horticulture, Lucknow.

Utpala Parthasarathy

Awarded Ph.D for her thesis *A comparative study of coconut cultivation in coastal and inland river plain ecosystem of Kasaragod district of Kerala and Kamrup district of Assam* by Gauhati University, Guwahati. Assam

Participation in Symposia/ Seminars/ Conferences/ Meetings

Anandaraj M

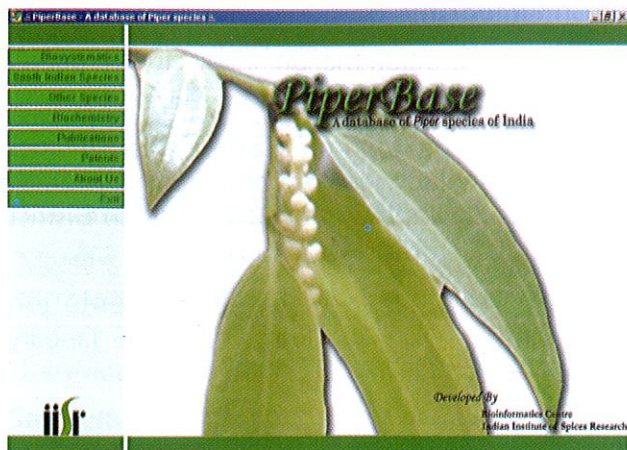
Formulation of network projects on PGPR, KAB II, New Delhi, 04 April 2005; IHR, Bangalore, 09 April 2005; CISH, Lucknow, 02 May 2005.

Changes in management in AICRPs, NASC, New Delhi, 16-18 May 2005.

Bhat A I

National consultation on certification of tissue culture raised plants for virus and quality testing, DBT, New Delhi, 19 April, 2005.

The safety assessment of genetically modified foods, MSSRF, Chennai, 27-28 May 2005.



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The safety assessment of genetically modified foods, MSSRF, Chennai, 27-28 May 2005.

Formulation of network project on development of transgenic virus resistant crops, DBT, New Delhi, 06-07 June 2005

Bhat A I
Kumar A
Shiva K N
Srinivasan V
Sheeja T E

Capacity building programme for Indian agricultural research, extension, development organizations in globalized economy, NAARM, Hyderabad, 29-30 April 2005.

Chempakam B
Kandiannan K
Thankamani C K
Srinivasan V
Utpala Parthasarathy

Agro-forestry for Attappady wastelands – potential and prospects; Attappady Hills Area Development Society, Agali, Palakkad, Kerala, 08-09, January 2005.

Devasahayam S

Insect growth regulators and natural products in insect pest management, Calicut, 11 January 2005.

Biological control of pests of horticultural crops: new thrusts, Bangalore, 19 March 2005.

Laboratory Accreditation under ISO 17025:1999 standard, New Delhi, 29-30 June 2005.

Jacob T K

Action plan meeting of KVKs of Zone VIII, TOTs Projects, Bangalore, 18-19 April 2005.

Jayarajan K

Implementation of personnel management information system network (PERMISNET), IASRI, New Delhi, 15 March 2005.

John Zachariah T

Processing and value addition in pepper, Peravur, Tellicherry, 15 January 2005.

Investors meet, District Industrial Centre, Calicut, 24-25 January, 2005.

Kandiannan K

South Zone regional interface meeting on water management, ICAR and Department of Agriculture and Cooperation, CRIDA, Hyderabad, 16 April 2005.

Krishnamoorthy B

Awareness programme on Intellectual Property Rights, IARI, New Delhi, 17-18 May 2005.

Sensitization program on Business Opportunities in Biotechnology, jointly organized by Small Industries Service Institute (GOI), IISR and District Industries Centre, Kerala Government.

Town Official Language Implementation Committee (TOLIC) meeting, Calicut, 28 January 2005.

Kumar A

Ginger platform meeting, Gangtok, Sikkim, 16-19 January 2005.

Parthasarathy V A

Biotechnological interventions for improvement of horticultural crops: Issues and Strategies, KAU, Trichur, 10 January 2005.

Preparing a disaster management plan for Kerala State, convened by Kerala State Council for Science, Technology and Environment, CWRDM, Calicut, 14 January 2005.

Internal screening committee meeting, ICAR, 28 January 2005.

Biotechnology of transgenic vegetables, New Delhi, 10 February 2005.

199th Meeting of ICAR Governing body, ICAR, 03 March 2005.

III Meeting of VI IJSC, CRC, Appangala, 04 April 2005.

South Zone regional interface meeting on water management, ICAR and Department of Agriculture and Cooperation, CRIDA, Hyderabad, 16 April 2005.

DBT sponsored meeting for formulation of network project on integrated development of value added products from ginger and turmeric, ICAR Research Complex, Barapani, 29 April 2005.

Meeting on redeployment and cadre review of scientists, ICAR, 09 May 2005.

200th Meeting of ICAR Governing body, ICAR, 25 May 2005.

Meeting of Directors of Horticultural Division of ICAR, New Delhi, 17 June 2005.

Santhosh J. Eapen

DBT Task Force (Biopesticides) Meeting, DBT, New Delhi, 02 February 2005

BTIS Coordinators' Meeting, Birla Institute of Scientific Research, Jaipur, 03-04 February 2005.

Meeting of the state level quality control team for monitoring the production of quality rooted pepper cuttings, Directorate of Agriculture, Thiruvananthapuram, 18 May 2005.

Sasikumar B

Kerala Science Congress, KFRI, Peechi, 30 January 2005

Forging strategic linkage between local self governments and R & D institutions, State Planning Board, Thiruvananthapuram, 1-2 March, 2005.

Shiva K N

Network programme on Germplasm Evaluation and Utilization, NBPGR, New Delhi, 26-27 May 2005.

Visits abroad

Krishnamoorthy B Mathew P A

Visited Grenada as experts in nutmeg agronomy for the *Diagnostic Mission for revitalization of nutmeg industry in Grenada*, organized by the Commonwealth Secretariat, London, 2-18 June 2005.

Membership in committees/ professional societies

Anandaraj M

External member, Assessment of Technical Officers, IIHR, Bangalore.

Executive Councilor, Indian Society for Plantation Crops.

Devasahayam S

Member, Editorial Board, Newsletter for Bird Watchers, Bangalore.

John Zachariah T

Member, Committee for the selection of sophisticated instruments at CWRDM, Calicut

Parthasarathy V A

Elected member, Standing Finance Committee of ICAR Society

Sasikumar B

Judge (Biotechnology), Young Scientist Award of the XVIII Kerala Science Congress, KFRI, Trichur, 30 January 2005.

Lectures delivered

■ Vanilla cultivation, FTC, Feroke, Calicut, 11 January 2005. (*Mathew P A*)

■ Black pepper and cardamom cultivation practices. In: Farmer participatory workshop, Maragodu, organized by Coffee Board, Madikeri, 12 January 2005. (*Anke Gowda S J*)

■ Quality requirements in Spices, Communications centre, Mannuthy, 13 January 2005. (*John Zachariah T*)

■ Processing and value addition in pepper. In: Farmers seminar, Peravur, Thalassery, 15 January 2005. (*John Zachariah T*)

■ Ginger Diseases in Sikkim and their management strategies. In: Ginger platform meeting, Gangtok, 16-19 January 2005. (*Kumar A*)

■ Quality standards in spices: Department of Agriculture, Sultan Bathery, Wynad, 19 January 2005. (*Chempakam B*)

■ Post harvest processing and value addition in pepper, Department of Agriculture, Sultan Bathery, Wynad, 19 January 2005. (*John Zachariah T*)

■ Use of biofertilizers in spice crops. In: Training to NGOs for development and cooperation, IISR, Calicut, 7-11 February 2005. (*Srinivasan V*)

■ Processing and value addition in spices, MACFAST, Thiruvalla, 10 February 2005. (*John Zachariah T*)

■ Principles and practices of organic farming. In: Spices-Farmers seminar, organized by Department of Agriculture, Calicut, 10 February 2005. (*Rajeev P*)

■ Processing of ginger and turmeric, Chalode, Kannur, 15 February 2005. (*John Zachariah T*)

■ Black pepper cultivation practices. In: Farmer participatory workshop, Karada, organized by Coffee Board, Nopokkalu, 18 March 2005. (*Anke Gowda S J*)

■ Black pepper and ginger cultivation practices. In: Quality improvement program, Murnad,

organized by Spices Board, Madikeri, 24 March 2005. (Anke Gowda S J)

■ Inaugural lecture. In: Training to NGOs on plant protection, IISR, Calicut, 07 April 2005. (Parthasarathy V A)

■ Meeting on seed bill, VVV club, Chakkittapara, 08 April 2005. (Mathew P A)

■ Water management in spices. In: South zone regional interface meeting on water management, organized by ICAR-Department of Agriculture and Cooperation, CRIDA, Hyderabad, 16 April 2005. (Kandiannan K)

■ Agronomical practices in chillies, ginger, cardamom, black pepper. In: Program on pest and disease control in horticultural crops, Shantalli, organized by Horticulture Department, Somwarpet, 04 May 2005. (Anke Gowda S J)

■ Inaugural lecture. In: Summer training on techniques in biochemistry and biotechnology, IISR, Calicut, 5 May 2005. (Parthasarathy V A)

■ Virus diseases and its management in black pepper. In: Farmer-Scientist workshop organized by Rural Agency for Social & Technological Advancement, Kalpeta, 19 May 2005. (Bhat A I)

Participation in trainings

Jayarajan K

Effective technical assistance in management of agricultural research, NAARM, Hyderabad, 03-09 February 2005.

Jayashree E

Unit and bulk packaging systems for food, pharmaceuticals, cosmetics and consumer goods, Indian Institute of Packaging, Bangalore, 09-10 June 2005.

Prakash K M

Soil, water and plant testing, TNAU, Coimbatore, 29 March 2005 to 02 April 2005.

Thankamani C K

Microirrigation and fertilization, CWRDM, Calicut, 03-10 March 2005.

Distinguished visitors

Mr. Michael Krondl, New York, USA visited IISR, Calicut on 04 February 2005.

Dr Tsedeke Abate, Director General, Ethiopian Agricultural Research Organization visited KVK on 27 May 2005.

Promotions

Name	Promoted to	w.e.f
Shri. K. Kumaran	T5	01 January 2005
Shri. N. A. Madhavan	T5	01 January 2005
Shri. K. T. Muhammed	T5	01 January 2005
Shri. V. Sivaraman	T5	01 January 2005
Dr. C. K. Sushamadevi	T5	01 January 2005
Shri. M. Vijayaraghavan	T5	01 January 2005
Shri. K. Ananda	T4	03 February 2005
Shri. N. P. Padmanabhan	T4	03 February 2005
Shri. V. P. Sankaran	T4	03 February 2005

New Appointments

Name	Post	Place	w.e.f
Mr. T. H. Nagaraj	AAO	CRC, Appangala	16 December 2004
Ms. N. K. Anupama	LDC	IISR, Calicut	04 February 2005
Ms. K. M. Rahana	LDC	IISR, Calicut	27 May 2005

IMC reconstituted

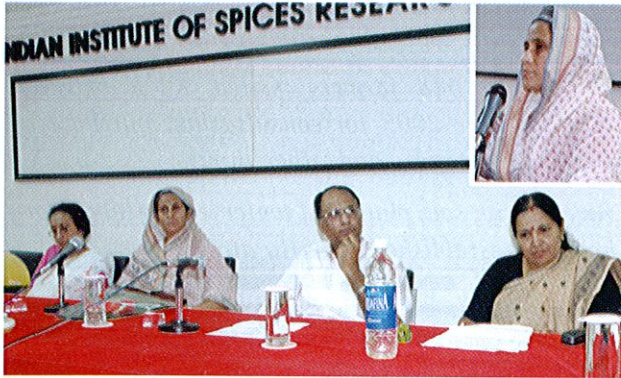
The Management Committee of IISR has been reconstituted by ICAR. The new IMC consists of Dr V. A. Parthasarathy, Director, IISR as Chairman and AAO, IISR as Member Secretary. The members of the committee are the Additional Director of Agriculture (Kerala), Commissioner of Horticulture and Plantation Crops (TN), Associate Director of Research (RARS, Pattambi) and Finance & Accounts Officer (CRRI, Cuttack). The official members are Assistant Director General (PC), Dr S. Devasahayam (Principal Scientist, IISR), Shri P. A. Mathew (Principal Scientist, IISR farm, Peruvannamuzhi), Dr George V. Thomas (Principal Scientist, CPCRI, Kasaragod) and Dr K. V. Nagaraja (Principal Scientist, NRC Cashew, Puttur). Shri K. Mukundan, Wynad and Shri Dharendra Bahadur Singh, Lucknow are the non-official members.

National Science Day celebrated

The National Science Day was celebrated on 24 February 2005. Dr E.J. James, Executive Director, CWRDM, Calicut was the chief guest. He delivered a lecture on Formation, propagation and impact of Tsunami waves.

International Women's Day observed

The International Women's day was observed on 7 March 2005. Chief Guest Smt. B.M. Suhara, the renowned Malayalam Novelist, gave a lecture on recent trends in Malayalam novels highlighting the role of women.



Institute Joint Staff Council meeting held

The III meeting of the VI IJSC was held at Cardamom Research Centre (CRC), Appangala on 04 April 2005. The meeting was chaired by Dr. V.A. Parthasarathy, Director. Dr M.N Venugopal, Head, CRC, Appangala was also present.

SARANI – IISR Recreation Club

A picnic was organized by SARANI to Wynad on 12 February 2005. The Annual Day of the recreation club was held on 7 May 2005. Shri. C. P. Rajasekharan, Director, All India Radio, Kozhikode was the chief guest. Prizes were distributed to the winners in various cultural and sports competitions. SARANI Merit Awards were given to students who secured the highest marks in S.S.L.C. and CBSE X standard examinations. An orchestra followed by a cultural program by the members added much charm to the evening.



हिन्दी खेल

जनवरी से जून 2005 की अवधि में राजभाषा कार्यान्वयन समिति की दो बैठकें आयोजित की गईं। प्रस्तुत काल में आई आई एस आर स्पाइसस न्यूज का हिन्दी रूपान्तर प्रकाशित किया गया। एक हिन्दी कार्यशाला आयोजित की गई। सुश्री पी वी साली, निजी सहायक को नगर राजभाषा कार्यान्वयन समिति द्वारा दिनांक 27.5.2005 को आयोजित एक दिवसीय हिन्दी कार्यशाला में भाग लेने के लिए नामित किया गया। श्री बी कृष्णमूर्ति, हिन्दी अधिकारी, श्री वी सी सुनिल, वरिष्ठ लिपिक, सुश्री एन प्रसन्नकुमारी, हिन्दी अनुवादक ने कालिकट में आयोजित नगर राजभाषा कार्यान्वयन समिति की बैठक में भाग ली। इन तीनों के अलावा श्री पी एस हरीष, सुश्री एन प्रीति और श्री ए सुधाकरन ने भी नगर राजभाषा कार्यान्वयन समिति द्वारा कालिकट में आयोजित हिन्दी सप्ताह के समापन समारोह में भाग लिये।

Transfer of Technology

Trainings

- ◆ Seven on campus short duration training courses on production management of major spices were organized. Around 105 officials from different parts of the country participated.
- ◆ Training on ginger and turmeric production management for members of Farmers Cooperative Society, Satara District, Maharashtra, 03-05 January 2005.
- ◆ Entrepreneurship training to NGOs on method of biocontrol of diseases, 7-11 Feb 2005.
- ◆ Off campus training programme for staff of Department of Horticulture of NE states under the Central Sector Technology Mission on Integrated Development of Horticulture in NE states on production management in ginger, turmeric and tree spices, 15-17 March 2005.

A team of scientists from IISR consisting of Dr. M. Anandaraj, Sbri P.A. Mathew, Dr. B. Sasikumar, Dr. T. John Zachariah, Dr. K. Kandiannan and Dr. P. Rajeev visited Shillong from 15-17 March 2005 to impart training to the staff of Department of Horticulture of NE states on production management in ginger, turmeric and tree spices.

Agricultural Technology Information Centre

The sale of technology inputs from the centre has been strengthened by distributing planting material, farm produce and bio inputs produced by the institute including KVK. The publications on package of practice of 7 major spice crops have been updated.

A video film on the services and achievements of the institute was produced under the Karshaka Information Systems and Networking Project of the Department of Agriculture, Kerala and telecast world wide through ASIANET.

The centre participated in 4 exhibitions and organized 3 farmers' seminars.

The research and services of the institute was covered by the leading farm journal "Karshakashree".

A total of 1463 visitors were benefited through advisory and diagnostic services.

Krishi Vigyan Kendra

The KVK conducted 42 training programs during January-June 2005. A total of 1312 persons, which included farmers (1256), rural youth (25) and extension functionaries (31) have benefited from the training programmes.

Two long duration (3 months) vocational training programmes on *Repair and maintenance of farm implements* and *Tailoring* were conducted for rural youth. A total of 90 unemployed rural youth

Highlights

- ▶ 42 Training Programmes
- ▶ 3 Front Line Demonstrations
- ▶ 3 On-Farm Testing Programmes
- ▶ 2 Vocational Training Programmes
- ▶ 2 Farmers Study Tours
- ▶ 1600 participants

were benefited from the trainings.

KVK also organized 3 front line demonstrations on

- Drought management in coconut gardens
- High density planting of tissue culture banana (var. Nendran)
- Poultry with commercial hybrid layer chicken in backyard system for egg production

Also, 3 On Farm Testing programmes and 8 collaborative training programmes for SHGs were organized.

The KVK actively participated in the Calicut Flower Show from 9-12 February 2005 and the regional Kisan Mela cum Exhibition on Horticulture, Bangalore from 22-23 March 2005.

A total of 348 farmers visited KVK between January-June 2005 for consultation, purchase of planting materials and other inputs.

An exclusive soil, plant and water testing laboratory has been established recently at KVK.



Training to farmers on black pepper multiplication

Publications

Research papers

- Bhat A I, Hareesh P S, Madhubala, R. 2005. Sequencing of coat protein gene of an isolate of *Cucumber mosaic virus* infecting black pepper (*Piper nigrum* L.) in India. *J. Plant Biochem. & Biotech.* 14: 37-40.
- Jayadev K, Rajesh M K, Devakumar K, Thomas R J, Nair R V, Parthasarathy V A. 2005. DNA amplification fingerprinting in coconut: protocol optimization and analysis of resistance to root (wilt) disease. *CORD* 21: 39 – 49.
- Johnson George K, Ganga G, Sandeep Varma R, Sasikumar B, Saji K V. 2004. Identification of hybrids in black pepper (*Piper nigrum* L.) using male parent specific RAPD markers. *Curr. Sci.* 88: 216-218.
- Johnson George K, Sandeep Varma R, Ganga G, Anandaraj M, Parthasarathy V A. 2005. A method for isolation and reverse transcription of high quality RNA from *Piper* species. *J. Spices and Aromatic Crops* 14: 10-14.
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Techniques in biotechnology and biochemistry- Training Manual (Eds.) Chempakam B, Sheeja T E., IISR, Calicut, 300 pp

Announcement

The Indian Society for Spices, Calicut in collaboration with IISR, NRC for Onion and Garlic, Pune, NRC for Seed Spices, Ajmer and ICAR, New Delhi is organizing a National Symposium on **Current Trends in Onion, Garlic, Chillies and Seed Spices- Production, Marketing and Utilization** (SYMSAC-II) during 25-27 November 2005 at NRC for Onion and Garlic, Pune.

Last date for registration: 15 October 2005

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On the stands

Extension pamphlets (revised edition)

Black pepper



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Ginger



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Also available: Pamphlets on Cinnamon, Clove, Nutmeg, Turmeric and Vanilla

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Radio talk

Date	Topic	Speaker(s)
08/01/05	Special programme on KVK	Jacob T K & Prakash K M
17/01/05	Where tradition meets science	John Zachariah T
20/01/05	Quality improvement in spices	Prakash K M
03/03/05	Various methods of composting	Prakash K M
10/04/05	Latest spice varieties of IISR	Sasikumar B
11/04/05	Value added spice products for cottage industries	Prakash K M
08/05/05	Technologies for crop protection	Santosh J Eapen

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