



SPICES NEWS



Research Update

Black pepper germplasm were augmented through collections from Cherrapunji, Tirupathy, Wyanad and Kannur. Germplasm accessions and open pollinated progenies were planted in the field. To safeguard the valuable germplasm of black pepper an alternate center was identified at CPCRI, Kidu.

An accession of cassia (INGR No. 05029) having high oleoresin (10.5%) was registered with NBPGR, New Delhi.

Germplasm collections at IISR presently include 3350 accessions of black pepper, 394 accessions of cardamom, 756 accessions of ginger and 899 accessions of turmeric.

Out of one hundred and two nutmeg accessions, A11/25 was found to be the best yielding 952 fruits/ tree.

Cardamom exported from India, Sri Lanka and Guatemala was characterized based on physical, biochemical and molecular techniques. For most of the physical and biochemical quality parameters such as starch and crude fiber, Indian cardamom was found to be superior. GC profiles indicated high intrinsic quality of the Indian cardamom (as it has high percentage of 1-8 cineole and α - terpenyl acetate). Molecular

profiling using RAPD/ ISSR primers did not reveal much polymorphism indicating genetic homogeneity of the cardamom samples.

Highlights

- ▶ Germplasm collection & registration
- ▶ Quality profiling of exported cardamom
- ▶ Aerial stem fasciation in ginger
- ▶ Nutrient management in ginger and turmeric
- ▶ Cymbidium mosaic virus on vanilla
- ▶ Biocontrol consortia
- ▶ Nematode resistant black pepper lines

Stem fasciation is rare in monocots especially *in planta* except though direct regeneration of plantlets. However, a case

of aerial stem fasciation was observed in a stressed ginger accession maintained in the field.

Efficiency of organic amendments in reducing the P fixation capacity of the soil was studied under lab conditions. The P adsorption maxima decreased with the addition of FYM followed by vermicompost. Contrarily, coir pith compost increased the rate of P adsorption.

Among the different management systems *viz.* organic, integrated and inorganic, significantly high fresh rhizome yields of ginger was recorded in the integrated management (22.36 t/ha) and highest oleoresin content (3.96%) in organic management. In turmeric, organic system recorded the lowest yield of rhizomes (31.04 t/ha) as compared to



stem fasciation in ginger

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integrated management (41.67 t/ha) with high oil and curcumin content.

About 15 important qualitative morphological characters of 16 wild species of *P. nigrum* of south India were studied and plotted for the hierarchical clustering using SPSS. The cluster groups were then compared with environmental factors using DIVA GIS.

High yielding black pepper accessions showed higher photosynthetic rate, transpiration rate, stomatal conductance and lower leaf temperature compared to low yielders. High yielders had slightly higher starch accumulation in berries during the bearing period.

Occurrence of cymbidium mosaic virus on vanilla was reported for the first time from India based on coat protein gene sequence studies. The coat protein gene of the virus was amplified, cloned and sequenced. The coat protein gene consisted of 672 nucleotides potentially coding for 223 amino acids. Sequence analyses showed an identity of >90% with coat protein gene of majority of cymbidium mosaic virus isolates from different parts of the world infecting orchids.

A study on the effect of *Piper colubrinum* on phytophthora foot rot incidence indicated that planting *P. colubrinum* along with black pepper does not prevent the disease incidence. However, the crop stand in varietal mixture plot involving phytophthora tolerant lines is significantly higher when compared to plots where susceptible line was used.

SPICEPAT- a database on patents related to spices, PIPERBASE- a database on Piper species, SOILLAB- a software for classifying soils based on nutrient status, PAYROLL, IMPRESTSOFT and ADVANCESOFT are some of the softwares developed by IISR.

The field experiment involving biocontrol consortia indicated that the number of black pepper vines showing yellowing was significantly lower in the treatment involving IISR 6, 8, 13, 51, 151+ 859. This treatment also recorded least population of plant parasitic nematodes.

DNA was isolated from 85 *Phytophthora* isolates and preserved at -30° C. The yield of DNA from 100 mg of mycelium ranged from 500 to 2000 µg/ml. ITS-PCR done using ITS-4 and ITS-6 primers for 70 isolates revealed differential banding pattern

for *P. capsici*, *P. palmivora* and *P. colocasia*.

Black pepper germplasm accession C.820 and a hybrid HP 39 were resistant to burrowing nematode, *Radopholus similis* even after two years of field screening. Similarly C.1090 is resistant to root knot nematode, *Meloidogyne incognita*.

Ginger strains of *Ralstonia solanacearum* from Southern and North-eastern parts of the country are very closely related according to their pathogenicity, biovar and Rep-PCR profile indicating the strain migration from one place to another.

Personalia

Awards/ Honours/ Recognitions

Anandaraj M

Nominated by ASRB as DG's Nominee for Assessment Committee of Scientists of Indian Institute of Horticultural Research, Bangalore.

Nominated as Outside Member for the IMC of CPCRI, Kasaragod.

John Zachariah T

Santosh J Eapen

Sheeja T E

Recognized as research guides for M. Phil. and Ph. D. programs in biotechnology by Acharya Nagarjuna University, Guntur, A.P.

Krishnamoorthy B

Consolation prize in National Open Hindi Essay Competition on Uses and Applications of Select Spices conducted by Spices Board as part of Hindi Fortnight Celebrations 2004.

Parthasarathy V A

Nominated to the Academic Council of Kerala Agricultural University and CUSAT by the Governor of Kerala.

Nominated to the Governing Body of State Horticultural Mission, Kerala.

Nominated to the Board of Studies (Biotechnology), Kannur University.

Chaired the Session II (Advanced research in nutrient and crop management including horticulture and plantation crops and their utilization) at VIII National Seminar of Indian Society of Coastal Agricultural Research, CTCRI, Trivandrum, 21-22 December 2005.

Prasath D

Awarded degree of Doctor of Philosophy in Horticulture by TNAU, Coimbatore on 08.07.2005 for the research work *Studies on development of F hybrids in paprika type Chilli (Capsicum Annuum L.) with high yield, colourant and resistance to anthracnose.*

Santosh J Eapen

Nominated as Member, Board of Studies (Bioinformatics), Calicut University.

Sasikumar B**Haridas P****Johnson George K****Saji K V****John Zachariah T****Mathew P A****Parthasarathy V A**

Dr. JS. Pruthi Award for the best research paper in J. Spices and Aromatic Crops.

Sasikumar B, Haridas P, Johnson George K, Saji K V, John Zachariah T, Mathew P A, Parthasarathy V A. 2005. IISR Thevam, IISR Malabar Excel and IISR Girimunda, three new black pepper clones. J. Spices and Aromatic Crops, 13(1): 1-5.

Participation in Symposia/ Seminars/ Conferences/ Meetings**Anandaraj M**

National Workshop on Microbial Inoculants for Crop Nutrition and Health, Kerala Agricultural University, Vellayani, Trivandrum, 30 September 2005.

Anke Gowda S J

District Level Resource Person Meeting to identify the areas for horticulture development in Kodagu district, Central Horticulture Experimental Station, (IIHR), Chettalli, 20 September 2005.

Devasahayam S

Workshop on Researchable Issues on Storage Pests and their Ecofriendly Management for Safe Consumption and Trade under Changing Global Scenario. Pantnagar, Uttaranchal, 02-03 August 2005.

Workshop on Applying Innovation Systems Concepts to Agricultural Research, ICRISAT, Hyderabad, 22- 24 November 2005.

VI Discussion Meeting on Emerging Technologies and Resistance Dynamics in Insects and Crop Plants, Chennai, 02 December 2005.

Devasahayam S**Dinesh R****John Zachariah T****Kandiannan K****Rajeev P**

Workshop on Organic Farming and Post Harvest Technology in Major Spices, Dimapur, Nagaland, 18-21 October 2005.

Jacob T K

High Power Committee meeting of KVKs of Zone VIII, KVK, Pondicherry, 23- 24 August 2005.

Jayashree E

FOOD PLUS 2003: Workshop on Value Addition to Foods, Association of Food Scientists and Technologists, Bangalore, 09-10 December 2005.

John Zachariah T**Leela N K****Sasikumar B****Shiva K N**

SYMSAC II: Current Trends in Onion, Garlic, Chillies and Seed Spices Production, Marketing and Utilization, NRC for Onion and Garlic, Rajgurunagar, Pune, 25-27 November 2005.

Jijil I**Vinod T K**

Workshop on XML databases, Indian Institute of Information Technology and Management-Kerala (IIITMK), Technopark, Trivandrum, 10-11 December 2005.

Krishnamoorthy B

Package of Practices (crops) Workshop, KAU, Thrissur, 25 October 2005.

36th TOLIC Meeting, Hotel Malabar Palace, Calicut, 26 October 2005.

Leela N K

National Seminar on Trends in the Versatile Technique of HPLC organized by Asian and Mideast Institute of Chemists in collaboration with Amrita Institute of Medical Sciences & Research Centre, Kochi, AIIMS & Research Centre, Kochi, 04-05 November 2005.

Manoj P S Prakash K M

Annual Review Meeting of KVKs, RVS Trust, Dindigul, 21-23 September 2005.

Mathew P A

Research-Extension Interface, Department of Agriculture, Calicut, 23 August 2005.

Brain Storming Session on Rain Water Harvesting and Post Harvest Operations, Newman College, Thodupuzha, 21 December 2005.

Parthasarathy V A

Meeting on Finalization of Training on Biotechnology and Molecular Biology, NBPGR, New Delhi, 07-08 July 2005.

ICAR Governing Body Meeting, ICAR, New Delhi, 14 July 2005.

ICAR Standing Finance Committee Meeting, ICAR, New Delhi, 14 July 2005.

ICAR Annual General Meeting, 15 July 2005.

ICAR Governing Body Meeting, ICAR, New Delhi, 01 September 2005.

Meeting on Certification of TC Plants, ICAR, New Delhi, 12-14 October, 2005.

National Conference on KVK 2005, ICAR, New Delhi, 27-28 October 2005.

Directors' Workshop on Leadership Development and Strategic Planning, NAARM, 08-10 November 2005.

ICAR Governing Body Meeting, ICAR, New Delhi, 23 November 2005.

Governing Body Meeting of State Horticultural Mission (Govt. of Kerala), Trivandrum, 28 November 2005.

Meeting of Directors' of Horticulture Division, ICAR, New Delhi, 16 December 2005.

VIII National Seminar of Indian Society of Coastal Agricultural Research, CTCRI, Trivandrum, 22 December 2005.

XX Meeting of ICAR Regional Committee No. VIII, Chennai, 23-24 December 2005.

National Biodiversity Authority Advisory Committee Meeting, Chennai, 29 December 2005.

Prakash K M

National Conference on KVK, New Delhi, 27-28 October 2005.

Prasath D

Stakeholders' Consultation Meeting for the Conservation and Management of Pollinators for Sustainable Coffee Production, organized by FAO, Madikeri, Karnataka, 25 August 2005.

Rema J

UPASI- KPA Coffee Conference, Bangalore, 08 November 2005.

Saji K V

2nd Regional Meeting of Global Plan of Action (GPA), NBPGR, Trissur, 17 November 2005.

Santosh J Eapen

DBT Task Force meeting on Biopesticides and Crop Management, TERI, New Delhi, 22 August 2005.

Board of studies (Bioinformatics) meeting, Calicut University, 01 October 2005.

Sasikumar B

Agricultural seminar: St. Joseph's College, Devagiri, Kozhikode, 27 October 2005.

ICAR- IPA National conference on IPR and Management of Agricultural Research, NAS Complex, New Delhi, 27-29 August 2005.

Srinivasan V

Brain storming session on the Relevance of Organic Horticulture in the Indian Context, IIHR, Bangalore, 20 December 2005.

Suseela Bhai R

Inaugural function: Biocontrol lab of RASTA, 19 October 2005.

District level Research Extension Interface, Department of Agriculture, Wyanad, 28 November 2005.

Group meeting on Diseases of Black Pepper and Cardamom organized by AICRPS, IISR, Calicut, 23 August 2005.

Doctoral Committee meeting of Applied Botany, Mangalore University, 05 December 2005.

Thankamani C K

Group meeting to review the progress on Network Programme on Organic Farming, Assam Agricultural University, Jorhat, 28-30 September 2005.

Membership in committees/ professional societies

Anandaraj M

Life Member, National Academy of Biological Sciences, Chennai.

Devasahayam S

Member, Expert Team, Assessment of Damage Caused by Spotted Locust to Plantation Crops, Koodaranji, Kozhikode District, 25 June 2005.

Jacob T K

Coordinating Officer, Doordarshan programmes.

Parthasarathy V A

Member, Advisory Committee on Agro-Biodiversity, National Biodiversity Authority, Chennai.

Facilitator cum Evaluator of Advancement of People's Action and Rural Technology Regional Committee, Dharwad, Karnataka.

Prasath D

Member, Indian Science Congress Association, Kolkata.

Saji K V

Life member, Indian Association of Angiosperm Taxonomy.

Lectures delivered

■ *Insect pests of stored spices and their management* In: Workshop on researchable issues on storage pests and their ecofriendly management for safe consumption and trade under changing global scenario, Pantnagar, Uttaranchal, 02-03 August 2005. (Devasahayam S)

■ *Value addition in spices* In: Farmers' interface, SAFI institute of Advanced Study, Vazhayoor, Malappuram, 27 August 2005. (John Zachariah T)

■ *Setting up of a Nematology laboratory* In: Entrepreneurship Training to NGOs, IISR, Calicut, 07 September 2005. (Santosh J Eapen)

■ *Research and development in seed spices under AICRPS* In: Winter school on advances in seed spices production, NRCSS, Ajmer, 22 September 2005. (Parthasarathy V A, Shiva K N, Johny A.K)

■ *Improved production technologies for cardamom, black pepper and ginger* In: Farmers Day, Madikeri, 23 September 2005. (Prasath D)

■ *Ginger and Vanilla production technologies*, Coffee Board, Bavali, Madikeri, 28 September 2005. (Prasath D)

■ *History and breeding of spices*: Lecture delivered to M.Sc. students of St Joseph's College, Devagiri, Calicut at IISR, Calicut, 01 October 2005. (Sasikumar B)

■ *DNA markers* In: DBT sponsored Training Programme on Biotechnology and Bioinformatics: Applications in Agricultural Research, IISR, Calicut, 16 October-08 November 2005. (Bhat A I)

■ *Hybridization techniques* In: DBT sponsored training program on biotechnology and bioinformatics: Applications in agricultural research, IISR, Calicut, 16 October-08 November 2005. (Bhat A I)

■ *Cloning* In: DBT sponsored training program on biotechnology and bioinformatics: Applications in agricultural research, IISR, Calicut, 16 October-08 November 2005. (Bhat A I)

■ *Virus resistant transgenic plants* In: DBT sponsored training program on biotechnology and bioinformatics: Applications in agricultural research, IISR, Calicut, 16 October-08 November 2005. (Bhat A I)

■ *Biodiversity informatics* In: DBT sponsored training program on biotechnology and bioinformatics: Applications in agricultural research, IISR, Calicut, 16 October-08 November 2005. (Saji K V)

■ *GIS: A tool for Biodiversity study* In: DBT sponsored training program on biotechnology and bioinformatics: Applications in agricultural research, IISR, Calicut, 16 October-08 November 2005. (Utpala Parthasarathy)

■ *Organic farming- Concepts, Principles and Practices* In: Workshop on organic farming and post harvest technology in major spices, Dimapur, Nagaland, 18 October 2005. (Kandiannan K)

■ *Organic nutrient management in black pepper, ginger and turmeric* In: Workshop on organic farming and post harvest technology in major spices, Dimapur, Nagaland, 18 October 2005. (Dinesh R)

■ *Organic management of insect pests of black pepper, ginger and turmeric* In: Workshop on organic farming and post harvest technology in major spices, Dimapur, Nagaland, 19 October 2005. (Devasahayam S)

■ *History and breeding of spices*: Lecture delivered to M.Sc. students (TNAU, Coimbatore), IISR, Calicut, 19 October 2005. (Sasikumar B)

■ *Organic certification- Principles and Procedures* In: Workshop on organic farming and post harvest technology in major spices, Dimapur, Nagaland, 20 October 2005. (Rajeev P)

■ *Processing of major spices and value addition* In: Workshop on organic farming and post harvest technology in major spices, Dimapur, Nagaland, 20 October 2005. (John Zachariah T)

■ *Quality requirement and quality management of spices for export* In: Workshop on organic farming and post harvest technology in major spices, Dimapur, Nagaland, 20 October 2005. (John Zachariah T)

■ *Tree spices*, lecture delivered to farmers and officials of NE states in the workshop organized by Spices Board, 27 October and 02 November 2005. (Mathew P A)

■ *Biodiversity information on the web* In: Workshop on biodiversity informatics & interlinking of databases, TBGRI, Thiruvananthapuram, 27 October 2005. (Santosh J Eapen)

■ *Tree Spices- an introduction* In: UPASI-KPA coffee conference, Bangalore, 08 November 2005. (Rema J)

■ *IPR issues in agriculture* In: Centre of Biotechnology, Nagarjuna University, Guntur, 10 November 2005. (Sasikumar B)

■ *Mechanization of production and post production operations in spices*: Lecture delivered in the short course on Mechanization of production and post production operations in plantation crops, CPCRI, Kasaragod, 19 November 2005. (Jayashree E)

■ *Recent advances in establishment and management of black pepper plantations*. In: Training programme on spices production technology for officials from Spices Board, 28 November 2005. (Thankamani C K)

■ *Biochemical constituents in selected chilli (Capsicum annum L.) accessions* In: SYMSAC-II: Current trends in onion, garlic, chillies and seed spices-Production, marketing and utilization,

NRC for Onion and Garlic, Pune, 25-27 November 2005. (Gobinath, P, Zachariah T J, Shiva K N, Leela N K, Jayarajan K)

■ *Management of insect pests of black pepper, ginger, turmeric and vanilla* In: Training programme on spices production technology for the officers of Dept of Horticulture of NE states, 28-30 November 2005. (Devasahayam S)

■ *Pests of spices and their management* In: Interface of research and extension workers, Agriculture Department, Kalpetta, 28 November 2005. (Santosh J Eapen)

■ *Production management in turmeric* In: Institute training programme on Spices production technology for the officers of Dept of Horticulture of NE states sponsored by the spices board, 28 November 2005. (Rajeev P)

■ *Biodiversity of Piper spp in South India and application of GIS and cluster analysis in search of its distribution* In: Third international conference on plants and environmental pollution, International Society of Environmental Botanist, NBRI, Lucknow, 28 November- 02 December 2005. (Utpala Parthasarathy, Saji K V, Jayarajan K, Parthasarathy V A)

■ *Breeding spices for trade requirements* In: ICAR winter school on trade oriented exploitation of horticulture in humid tropics- Opportunities and challenges, College of Agriculture, Vellayani, Thiruvananthapuram, 09 December 2005. (Sasikumar B)

■ *Changing Scenario of Indian spice trade in the era of globalization* In: Globalization and economic asymmetries: Challenges and opportunities, Indian Institute of Management, Calicut, 14-17 December 2005. (Parthasarathy V A, Madan M S)

■ *Present status and future prospects with special reference to value addition for spices in coastal ecosystem* In: VIII National seminar of Indian Society of Coastal Agricultural Research, CTCRI, Trivandrum, 21-22 December. (Parthasarathy V A, John Zachariah T)

Participation in trainings

**Jacob T K
Kumar A**

Training on Biotechnology and Bioinformatics for Agricultural Sciences, 19 October – 08 November 2005.

Rajeev P

Refresher course on IT in Agriculture, NAARM, Hyderabad, 01-21 June 2005.

**Santhosh J Eapen
Vinod T K**

E-Publishing, Indian Institute of Management, Kozhikode, 12-14 December 2005.

Srinivasan V

Summer school on Advances in frontier approaches to increase nutrient use efficiency in crop production sponsored by ICAR at Indian Institute of Soil Science, Bhopal, 22 July -11 August 2005.

Distinguished Visitors

Mr U C Raman, MLA, Kunnamangalam Constituency, 06 October 2005.

Dr Osmal Bali, University of Sierra Leone, 13 October 2005.

Dr Ayisha Guharaj, Retd. Principal, Calicut Medical College, 21 November 2005.

Mr P J Joseph, Ex- Education Minister of Kerala, 21 November 2005.

Mr P C Thomas, MP, Moovattupuzha Parliament Constituency, 21 November 2005.

Dr Georg Ebert, K + S KALI, GmbH, Germany, 23 November 2005.

Promotions

Name	Post	Date
Mr. P. Azgar Sheriff	T (7-8)	03/02/2005
Dr. Hamza Srmbikkal	T (7-8)	03/02/2005
Dr. Utpala Parthasarathy	T (7-8)	03/02/2005
Mr. M. M. Augusty	T6	01/01/2005
Ms. V. Radha	AFACO	02/07/2005
Ms. C. K. Beena	Financial upgradation, SS Gr. III	19/03/2005
Mr. K. P. Gangadharan	Financial upgradation, SS Gr. I	29/06/2005
Mr. T. T. Soman	Financial upgradation, SS Gr. I	22/09/2005

Appointments

Name	Post	Date
Dr. M. Anandaraj	Head, Division of Crop Protection	16/08/2005
Dr. B. Chempakam	Head, Division of Crop Production	19/08/2005

News and Events**Mid term Staff Research Council**

The mid term Staff Research Council meeting was held from 16-18 November 2005. Dr. V.A. Parthasarathy, Director, IISR reviewed all the projects including the ones funded by external agencies. There were 59 presentations that included 20 externally funded and 39 institute projects. All the projects were critically reviewed and decisions on each of the technical programme were recorded for implementation. One new project on *Adoption, diffusion and impact of improved varieties of spices released by IISR in*

Kerala and Karnataka was approved by the research council for implementation.

Vigilance Awareness Week

The Indian Institute of Spices Research, Calicut observed 7-11 November 2005 as Vigilance Awareness Week. The celebrations began with a pledge on 07 November 2005. Several competitions were conducted for the staff members and school students. Elocution competition was conducted both in English and Malayalam for the school students. Slogan and Essay writing competitions were held in English, Hindi and Malayalam for the staff members. The

valedictory function was held on 11 November 2005. Mr. N. Prabhakaran, Chief Manager (Personal Banking), State Bank of India was the Chief Guest.



Communal Harmony Campaign

As per the directives of the National Communal Harmony Foundation, Ministry of Home Affairs, GOI, communal harmony pledge was taken on 19 November 2005. Competitions such as elocution, pencil drawing, slogan writing etc was conducted on *Communal harmony and its promotion*. Prizes were distributed to the winners on Flag Day (25 November 2005). Mrs. Sobha Gopalakrishnan, the Principal of Amritha Vidyalaya, Calicut was the chief guest for the function.



Institute Joint Staff Council meeting

The IV and V meetings of the IJSC were held at IISR, Calicut on 21 July 2005 and 24 October 2005 respectively. The meeting was chaired by Dr. V.A. Parthasarathy, Director.

SARANI – IISR Recreation Club

The new office bearers took charge and the club activities were inaugurated on 01 July 2005, the Institute's Foundation Day. The Principal, Government Law College, Calicut was the chief guest for the function. The club also actively participated in various functions like Independence

Day, Vigilance Awareness Week and Communal Harmony Week. Besides, the club also organized Onam celebrations by conducting *floral carpet competition* and fun games for the staff members.

हिन्दी अनुभाग

प्रस्तुत काल में राजभाषा कार्यान्वयन समिति की तिमाही बैठकें दो बार आयोजित हुईं। संस्थान का 32 रबड की मोहरें द्विभाषी बना दी। स्पाइसस न्यूज हिन्दी रूपान्तर का अंक 2 (खंड 1) प्रकाशित हुई। विभिन्न हिन्दी प्रतियोगिताओं जैसे हिन्दी निबन्ध लेखन, गीत, भाषण, अनुच्छेद पठन, आशु भाषण, टिप्पण एवं आलेखन के साथ दिनांक 14.9.2005 से 24.9.2005 तक हिन्दी सप्ताह मनाया गया। हिन्दी सप्ताह के समापन समारोह में श्री सीता राम किन्ना, अधीक्षक अभियन्ता, सी पी डब्ल्यू डी, कालिकट मुख्य अतिथि बनकर आये थे। राजभाषा प्रयोग के संबन्ध में स्टाफ सदस्यों को प्रोत्साहित करने के लिए 20.9.2005 को एक हिन्दी कार्यशाला आयोजित की। श्री ई राधाकृष्णन, हिन्दी प्राध्यापक, हिन्दी शिक्षण योजना, कालिकट ने हिन्दी टिप्पण के संबन्ध में कक्षा ली। श्री वी वी सय्यद मोहम्मद, उच्च श्रेणी लिपिक, श्री पी सुन्दरन, उच्च श्रेणी लिपिक ने नार्म, हाइदराबाद में 4-9 अगस्त 2005 को आयोजित पांच दिवसीय गहन हिन्दी प्रशिक्षण व कार्यशाला में भाग ली। वार्षिक रिपोर्ट का सारांश, ए आई सी आर पी एस का कार्यकारी सारांश आदि हिन्दी में अनुवाद करके दोनों वार्षिक रिपोर्ट में जोड़ दिया। श्री बी कृष्णमूर्ति हिन्दी अधिकारी ने 26.10.2005 को आयोजित नगर राजभाषा कार्यान्वयन समिति की बैठक में भाग ली। सुश्री एन प्रसन्नकुमारी, हिन्दी अनुवादक ने 17.11.2005 को आयोजित नगर राजभाषा कार्यान्वयन समिति की उप समिति बैठक में भाग ली।



Bioinformatics Centre

The Bioinformatics Centre organized a 21 days training 'Biotechnology and Bioinformatics – Applications in Agriculture Research' from 19 October to 08 November 2005. Dr. P. Gautam, Professor, Centre for Biotechnology, Anna University, Chennai inaugurated the programme. Nine trainees from different ICAR institutes and agricultural universities participated. Apart from IISR, faculties from TNAU and Monsanto Research Centre also delivered lectures. The Centre has designed and developed a separate web site for KVK, Peruvannamuzhi and a web portal on 'Agri-informatics'

Transfer of technology

Trainings

- ◆ Training programme on Good Agricultural Practices for rural youth sponsored by ICRI, Myladumbara, 04-06 April 2005.
- ◆ Orientation training for apprentices, 03 October 2005.
- ◆ Training on computer applications for apprentices, 10-14 October 2005.
- ◆ Training on spices production technology for the officers of line department of NE states, 28-30 November 2005.

A team of scientists from IISR consisting of Dr. S. Devasabayam, Dr. T. John Zachariah, Dr. K. Kandiannan, Dr. P. Rajeev and Dr. R. Dinesh visited Dimapur, Nagaland for the Workshop on Organic Farming and Post Harvest Technology in Major Spices held at Dimapur, Nagaland. The workshop was jointly organized by IISR (Calicut), Dept of Horticulture (Government of Nagaland) and Spices Board (Dimapur) from 18-21 October 2005.

Agricultural Technology Information Centre

- ◆ The sale of technology inputs from the centre was strengthened by distributing planting material for Rs.31570/-, Trichoderma formulation for Rs. 23208/-, Pseudomonas formulation for Rs.15741/- and publications for Rs.23208/-
- ◆ The center participated in a Trade fare by CODISSIA at Coimbatore (11-16 August 2005), Farmers meet at Vazhayoor, Malappuram (28-29 September 2005), Calicut golden jubilee All India fare at St. Josephs College (7-12 November 2005).

Advisory services were provided for 321 visiting farmers, 43 extension /research functionaries and 547 students on study tour.

The number of visitors to ATIC from within the district was 199, from within the State 122 and from outside the State 85.

Krishi Vigyan Kendra

KVK organized 60 training programs on various facets of agriculture and animal husbandry. About 1757 participants which included farmers, rural youth and extension functionaries were benefited.

Two farmers' study tours were organized to Government Goat farm, Kommeri, Kannur on 02 July 2005 and 07 December 2005. About 49 farmers undertook the study tour.

Highlights

- ▶ 60 training programmes
- ▶ 3 seminars
- ▶ 2 farmers study tours
- ▶ 6 Front Line Demonstrations
- ▶ 5 On Farm Testing programs

Three seminars were conducted on organic farming. About 268 farmers participated in the seminars.

KVK organized six FLDs on

- Drought management in coconut garden
- Intercropping of *Njalipoovan* banana in coconut garden
- Introduction of CO3 Hybrid Napier as component in homestead
- High density planting of tissue culture Nendran banana



Farmers visiting KVK plot

- Introduction of short duration Oyster mushroom *Ananthan*
- Egg production by using commercial hybrid layer chicken in backyard system

Five OFT programs in crop science, horticulture and animal science were conducted by KVK.

KVK also participated in two exhibitions at SAFI campus, Vazhayoor, Malappuram (26- 27 August 2005) and at St. Josephs'College, Devagiri, Calicut (07-11 November 2005).

Publications

Research papers

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Anandaraj M. 2005. *Pseudomonas fluorescens* for disease management and growth enhancement of Crop Plants. In: *National Workshop on Microbial Inoculants for Crop*

Radio Talks/TV program

Date	Topic	Speaker(s)
10/09/05	New technologies for crop protection in spices.	Santosh J Eapen
23/09/05	Live phone-in program on varieties of ginger, pepper and turmeric on DD4.	Sasikumar B
22/10/05	Success stories of IISR ginger and turmeric varieties.	Sasikumar B
17/11/05	Procurement of seed ginger, uncommon fruit crops for homestead.	Prakash K M
19/12/05	Black pepper harvesting and processing.	Anke Gowda S J

Nutrition and Health (eds. Sivaprasad P, Meenakumari K S), Kerala Agricultural University, Vellayani, Trivandrum. 30 September 2005,

Utpala Parthasarathy, Saji K V, Jayarajan K, Parthasarathy V A. 2005. Biodiversity of *Piper sp* in south India and application of GIS and cluster analysis in search of its distribution. In: Third International Conference on Plants and Environmental Pollution (ICPEP-3), NBRI, Lucknow, 28 November- 02 December 2005.

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