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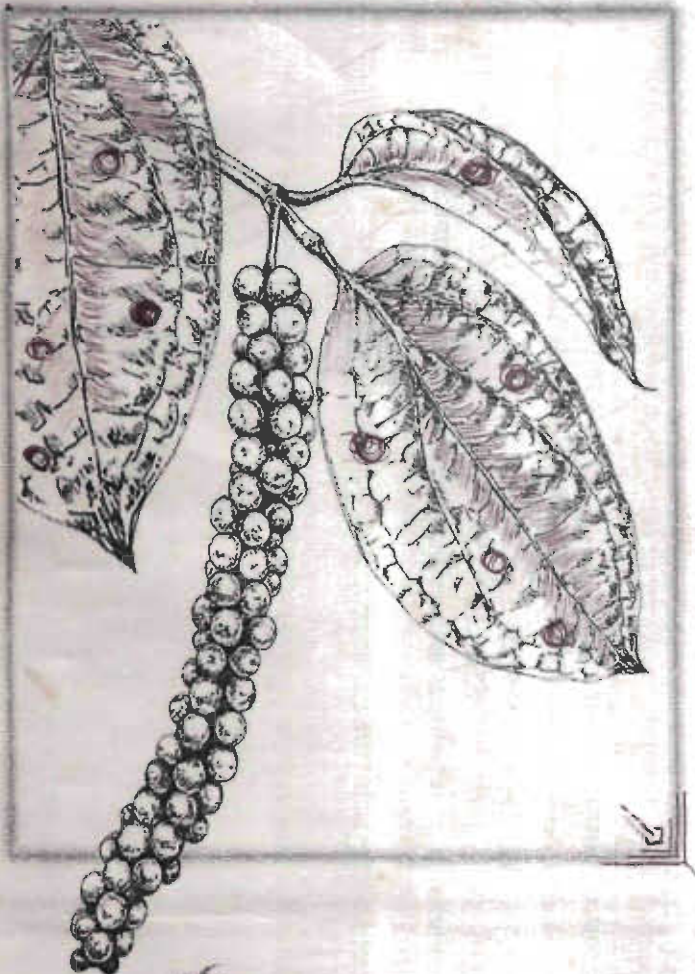


Proceedings

Annual IRC - Meeting

April 2007

ISRAR-(20)



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INDIAN INSTITUTE OF SPICES RESEARCH

(Indian Council of Agricultural Research)

Calicut - 673012, Kerala

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Current list of projects at IISR, Calicut

Division of Crop Improvement						
Sl No	Name	1	2	3	4	Man Months
1.	B. Krishnamoorthy	Gen. XXVI (813)	Gen. XXVII (813)	Gen. XXIII (813)		9
2.	K. V. Saji	Gen. I (813)	MOEF. I (813)	Gen. XXI (813)		9
3.	Johnson K George	MOEF. I (813)	Gen. XXIII (813)	ICAR-CIB2		9
4.	K.V Shiva	HORT.III (813)	Gen. XXV (813)	Biochem. IV (813)	PHT. IV (813)	12
5.	K. Abirami	Gen. XIX (813)	Hort. IV (813)	Biochem. III (813)	Hort. V (813)	12
6.	R. Senthil Kumar	Gen. XXVII (813)				12
7.	B. Sasikumar	Gen. XIX (813)	Gen. XVII (813)	ICAR- CIB 1	DBT- CIB 3	12
8.	J. Rema	Gen. XXVI (813)	Hort. IV (813)	ICAR- CPPT- 4		9
9.	R. Ramakrishnan Nair	Gen. XVI (813)	Gen. XV. (813)	Gen. XXV (813)		9
10.	P. A. Mathew	Gen. XVI (813)	MOEF. I (813)	Hort. V (813)		9
11.	K. Nirmal Babu	Gen. XVII (813)	Biotech. IX (813)			12
12.	T. E. Sheeja	Gen. XVII (813)	Gen. XXII (813)	Biotech. IX (813)	DBT- CIB 3	12
13.	D.Prasath	HORT.III (813)	Gen. XV. (813)	AICRPs		12
Division of Crop Production and Post Harvest Technology						
		1	2	3	4	Man Months
14.	B. Chempakam	Gen. XIV (813)	Phy. VII (813)	ICAR- CPPT- 5		9
15.	N.K Leela	ICAR- CPPT- 4	PHT. IV. (813)	ICAR- CPPT- 5	Org. Chem. II (813)	12
16.	Y. Srinivasan	SSC. IV (813)	SSC. III (813)	ICAR – CPPT-1		9
17.	R. Dinesh	SSC. IV (813)	SSC. III (813)	ICAR-CP 4		9
18.	K.S. Krishnamurthy	Gen. XXII (813)	Phy. VII (813)	Phy. VIII (813)		9
19.	C.K. Thankamani	SSC. IV (813)	ICAR – CPPT-1	Ag. XXVII (813)	NHM-CPPT-1	12
20.	T. John Zachariah	Gen. XVII (813)		PHT. IV. (813)	KSCSTE- CPPT-1	9
21.	K. Kandianan	Ag. XXIV (813)	Ag. XXVI (813)	Ag. XXVIII (813)		9
22.	Lipala Parthasarathy	Gen. I (813)	MOEF. I (813)	Ag. XXIV (813)		9
23.	S. Hamza	SSC. IV (813)	SSC. III (813)	Ag. XXVIII (813)		9
24.	S.J. Anke Gowda	SSC. IV (813)	Phy. VIII (813)	NHM-CPPT-1		9
25.	E. Jayashree		On study leave			
26.	A. Shamina	Gen. XIV (813)	Biochem. III (813)	Biochem. IV (813)		9
Division of Crop Protection						
		1	2	3	4	Man Months
27.	A. Ishwara Bhat	Path. XV (813)	ICAR- CP 2	DBT-CP 3		9
28.	R. Suseela Bhai	Crop Prot. I. 4 (813)	ICAR- CP 2	DBT-CP 3	Path. XVI (813)	12

29.	M.N.Venugopal	Biocontrol. II (813)	Path. XVII (813)			9
30.	A.Kumar	KSCSTE- CPPHT-1	Path. XVI (813)	**DBT-CP 2	ICAR-CP 4	12
31.	S.J.Eapen	Crop Prot. I. 4 (813)	Biocontrol. II (813)	**DBT-CP 2	DBT- SS 1	12
32.	S. Devasahayam	Gen. XXI (813)	Ent. XIII (813)	Ent. XII (813)		9
33.	T.K.Jacob	Ent. XIII (813)	Ent. XII (813)	Ext. IV (813)		9
34.	Biju, C.N	Path. XVII (813)	Biocontrol II (813)	Path. XV (813)		3
Section of Social Science						
		1	2	3	4	
35.	M.S.Madan	Econ. III (813)	Econ. IV (813)	Ext. V (813)		11
36.	P.Rajeev	Ext. IV (813)	Ext. V (813)	Stat. I (813)		9
37.	K.Jayarajan	Econ. IV (813)	Stat. I (813)			6
AICRP (Spices)						
		1	2	3	4	
38.	M.Anandaraj	ICAR-CIB2	ICAR- CPPHT- 5	ICAR- CP 2	ICAR-CP 4	12
39.	A.K.Johny	Econ. III (813)	Econ. IV (813)			6

** DBT project is continuing as institute project

Proceedings of Institute Research Committee meeting

Annual Institute Research Committee meeting of ISSR, Calicut was held between 26-28th March 2007. All the projects of ISSR Calicut were critically reviewed and suggestion, recommendations and decisions on each of the project were recorded. The present compilation on proceedings of the IRC meeting deals with the project wise decisions and suggestion for possible implementation in the ensuing financial year. Director, in his opening remarks, made the following points for implementation and action taken.

“Director’s remark on REGULATIONS FOR RESEARCH PROJECTS at ISSR, Calicut”

i. RECORD MAINTENANCE

1. New field books have been given. It must be separately maintained for each project.
2. Each project must have separate registers.
3. The field/lab notebooks as well as registers must have the name of the project clearly and boldly written on the front page with certificate in the first page.
4. No page must be torn or removed from the registers/note books.
5. These must be verified by the HODs when signing the RPF and due certificate made in the RPF.
6. The registers and related note books must be handed over at the time of leaving the institute on transfer or long leave as per the instruction of HOD and CTC made to the effect.
7. In RPF 3, it must be clearly mentioned where the registers are and under whose custody.
8. The person taking over should see that everything is in order.

ii. EQUIPMENT MAINTENANCE

1. All equipment must have logbook properly maintained with all details filled.
2. In the remarks column, it must be mentioned about the use made. Also mention what work was done.
3. The logbook should have the title of equipment written in marker pen neatly.
4. All equipment may maintain the engineer's visit logged and calibrations must be certified by the engineer in the proforma recently given to Dr.Bhat/Dr.Babu
5. The HODs as well as equipment monitoring committee must verify log books periodically

iii. EXTERNALLY AIDED PROJECTS

1. All correspondence to must be through PMT
2. P.I.s must ensure the spending of NR within six months of sanction.
3. P.I.s must recruit SRF's within three months.
4. The SRF's must fully work only on those projects and they should not be encouraged to do Ph.D. on some other projects.
5. SRF's registered for Ph.D. in one project must not be allowed to appear for posts in another project. If they are interested they should leave their Ph.D.
6. The monitoring committee should review the projects twice a year.
7. All the final reports must be submitted within 30 days of completion of the project and forwarded to the funding agency.
8. The HODs must bring to the notice of the Director any discrepancy noted.
9. The P.I.s must exercise the financial powers vested with them judiciously.

iv. PROJECT SELECTION

1. All projects must operate within the framework of the Mega Projects.
2. Every project must be focused with clear out puts envisaged. No vague titles such as "Improvement of spices", "Control of Major diseases of Saffron", etc should be avoided.
3. Trespassing into other disciplines should be avoided. In case of inter disciplinary approach; the co PI must be competent.
4. Possessiveness about the materials, equipment will have to be avoided.

5. New scientists must have freedom to work in areas where work has not been done. The creativity should be encouraged.

v. PUBLICATIONS

1. The rate of publications is poor. It must be increased with proper accounting of the project where it was done
2. The HoDs must ensure that due credit is given to all who have contributed. It must be decided within the division.
3. Unnecessary exaggerations should be avoided.
4. We may have to increase papers with relevance to increasing productivity of spices rather than publishing to increase the number of papers.
5. Patent oriented research is to be encouraged.

1. Crop Improvement and Biotechnology

General decisions:

1. Every project should have a minimum of two workers
2. Investigators at Scientist and Scientist (Senior Scale) level are allowed to handle four projects.
3. Investigators at the level of Senior scientists and above are permitted to handle three projects. However IRC Recommends four project if two of them are externally funded for the senior scientists

Mega Project-1: Collection, conservation, characterization and cataloguing of germplasm of spice crops for yield and other economically important characters. [Project Leader: P. A. Mathew]

1. Gen. 1 (813): Collection, conservation, cataloguing and evaluation of black pepper germplasm [1972-2008] [K. V. Saji and Utpala Parthasarathy]

Decisions:

1. Appropriate terminology will be used for germplasm in publication and presentation (e.g. collections, accession etc.)
2. Material transfer agreement will be used for exchange of germplasm with other organization and institutions

3. Expertise of K. Abirami and K.N.Shiva will be used for few technical programme

Technical programme	Quarterly work schedule*				Personnel
	I	II	III	IV	
Collection of germplasm from Bisle forest		*			KVS
Collection of germplasm from shendurny wls			*		JKG
Collection of germplasm from Karwar				*	UP
Plantating germplasm at CPCRI Kidu		*			KNS
Maintenance of germplasm	*	*	*	*	KA
Characterization of germplasm	*	*	*	*	

2. Gen. IX (813): Collection, conservation, cataloguing and evaluation of cardamom germplasm [1976-2007] [D. Prasath and M.N.Venugopal]

Decisions:

1. IRC recommended the closure of the project and consequently the RPFIII will be submitted by November 2007
2. Promising accessions will be registered with NBPGR, New Delhi
2. IC numbers will be cited in publications and correspondence
4. Dr. Senthil Kumar will propose a new project on maintenance of germplasm and characterization of germplasm accessions.
5. Descriptor or characterized accessions will be reported as a research publication.
6. New external funded projects will be proposed for development of cardamom database (Action: Dr. Prasath & Dr. S J Eapen)

3. Gen. II (813): Collection, conservation, cataloguing and evaluation of germplasm of ginger and turmeric [1976-2007] [B. Sasikumar, Johnson K. George, K. V. Saji and R. Ramakrishnan Nair]

Decisions:

1. IRC recommended the closure of the project and consequently the RPFIII will be submitted by November 2007
2. All germplasm descriptors to be completed.
3. Dr. Abirami will be associated in the project.
4. Dr. R.R. Nair will propose a new project on Genetics of *Curcuma* species
5. Separate descriptors for ginger and turmeric will be published.
6. A new project on ginger and turmeric to be submitted by Dr. B. Sasikumar

4. Gen. XIX (813): Conservation, characterization, evaluation and improvement of *Zingiber & Curcuma* spp. [B. Sasikumar, K. Abirami] [2007-2012]

Technical programme	Quarterly work schedule				Personnel
	I	II	III	IV	
Maintenance of germplasm and breeder's seed of the released varieties ginger & turmeric	*	*	*	*	BS, KA
Characterization of <i>Curcuma</i> Spp. based on 18 S rRNA sequence		*	*		BS
Preparation of germplasm catalogue of ginger & turmeric	*	*	*	*	BS
Yield evaluation of high oil type ginger and Nepal selections	*	*	*	*	BS, KA
Multiplication of short listed (nematode resistance) accessions for yield evaluation and quality (44 accessions) (Ginger & Turmeric)	*	*	*	*	BS,
Yield evaluation of low fiber ginger	*	*	*	*	BS
Comparative molecular profiling of putative wild type, exotic and improved varieties of ginger	*	*			BS

5. Gen. XIV (813): Characterization of turmeric germplasm for curcuminoids [2004-2008] [B. Chempakam and A. Shamina]

Decisions:

1. Project is extended for one more year
2. Expertise of N K Leela will be sought for few technical programmes
3. A. Shamina will be associated in the project
4. Cloning of *pal* gene will be done under this project

Technical programme	Quarterly work schedule				Personnel
	I	II	III	IV	
Analysis of turmeric accessions for curcuminoids	*	*	*		BC
Planting of turmeric rhizomes	*				BC
Analysis of PAL downstream enzymes		*	*		AS, BC
Searching data base and designing primers	*	*			AS, BC
Amplification of <i>pal</i> gene			*	*	AS, BC

7. Gen. VI (813): Collection, conservation, cataloguing and evaluation of germplasm of tree spices [1976-2007] [B. Krishnamoorthy, J. Rema, P. A. Mathew and D. Prasath]

Decision:

1. IRC recommended the closure of the project and consequently the RPF III will be submitted by November 2007
 2. Work on *Garcinia* will be carried out under MOEF project.
 3. Germplasm of tree spices will be maintained by farm section (Action: SIC, IISR Farm, Peruvannamuzhi)
 4. B. Krishnamoorthy will propose two new projects each on nutmeg and cassia for developing high yielding clones through conventional breeding.
- R. Senthil Kumar will associate in the new project

8. Gen. XXVI (813) Evolving high yielding and high quality nutmeg clones by selection [B. Krishnamoorthy and J. Rema] [2007-2011]

Technical programme	Quarterly work schedule				Personnel
	I	II	III	IV	
Field evaluation of elite nutmeg lines for yield	*	*	*		BK, JR
Multiplication of elite lines having high myristicin and elemicin in nutmeg and mace oils	*	*	*	*	BK, JR
Multiplication of elite lines having low myristicin, elemicin and saffrole and high sabinene in nutmeg and mace oils	*	*	*	*	BK, JR

9. Gen. XXVII (813): Improvement of cassia by selection [B. Krishnamoorthy and R. Senthil Kumar][2007-2010]

Decisions:

1. The project approved for three years

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Coppicing, bark extraction and recording morphological and yield characters in cassia at Peruvannamuzhi.			*	*	BK
Coppicing, bark extraction and recording morphological and yield characters in cassia at Appangala			*	*	RSK

10. Gen. XVI (813): Maintenance, enhancement and characterization of genetic variability in vanilla (*Vanilla planifolia* Andrews) (2005-2010) [R. Ramakrishnan Nair & P. A. Mathew]

Decisions:

1. A dedicated expedition will be carried out for vanilla germplasm.

Technical programme	Quarterly work schedule				Personnel
	I	II	III	IV	
Collection an maintenance of germplasm and seedling progenies	*	*	*	*	RRN
Maintenance of evaluation trials in the field	*	*	*	*	RRN, PAM
Maintenance of <i>in vitro</i> cultures and ex vitro establishment of seedlings progenies and hybrids	*	*	*	*	RRN
Studies on inter-specific crosses in vanilla	*			*	RRN
Anatomical and embryological and cytological studies in vanilla	*	*			RRN
Mutation studies in vanilla		*	*	*	RRN

11. MOEF. I (813): Biodiversity in *Piper* and *Garcinia* and Identification of spots of species richness in Western Ghats (Using GIS and molecular markers) [2006-2009] [P. A. Mathew, Utpala Parthasarathy, Johnson. K. George and K. V. Saji]

Decisions:

1. Technical programmes are carried out as per the technical programme

Technical programme	Quarterly work schedule				Personnel
	I	II	III	IV	
Survey and collection of <i>Piper</i> and <i>Garcinia</i>	*	*	*	*	PAM

Molecular characterization of <i>Piper</i> and <i>Garcinia</i>	*	*	*	*	*	JKG, KVS
GIS studies	*	*	*	*	*	UP

12. HORT.III (813): Collection, characterization, evaluation and maintenance of paprika and paprika alike chilies [D. Prasath, K. N.Shiva] [2004-09]

Decisions:

1. Dr. D. Prasath will be investigator of the project
2. Quality evaluation of paprika will be done with the help of Dr. T. John Zachariah

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Maintenance and multiplication of germplasm	*		*	*	DP, KNS
Purification of newly collected germplasm	*		*	*	DP, KNS
Quality analysis of germplasm	*				DP, TJZ
Monitoring, processing and distribution of germplasm to AICRPS centers	*	*			DP, KNS

Mega Project-2: Breeding improved varieties of spice crops for yield, quality, drought and resistance to pests and diseases [Project Leader: B. Krishnamoorthy]

1. Gen. XVII (813): Breeding black pepper for high yield, quality, biofic and abiotic stress [2006-2011] [V. A. Parthasarathy, B. Sasikumar, T. John Zachariah, K. Nirmal Babu, R. Suseela Bhai, Johnson K. George, Santhosh J. Eapen, K. V. Saji, S. Devasahayam, K. S. Krishnamoorthy, R. Ramakrishnan Nair & T.E. Sheeja]

Decisions:

1. This project is divided in to five projects on Yield and Quality, Foot rot resistance, Nematode resistance and Drought resistance. Consequently RPF 1 will be submitted for each of the project with retrospective effect from April 2006

2. Gen. XVII (813): Breeding black pepper for high yield and caryophyllene [B. Sasikumar and T. John Zachariah] [2007-2010]

Decisions:

1. The project is approved

Technical programme	Quarterly work schedule				Person nel
	I	II	III	IV	
Maintenance of the yield trial and recording of yield	*	*	*	*	BS
Intervarietal crosses involving Subhakara and high caryophyllene lines and multiplication of the progenies	*	*	*	*	BS
Estimating leaf caryophyllene content of the high caryophyllene lines	*	*	*	*	TJZ
Intervarietal crosses involving spike proliferating variant and other selected cultivars	*	*	*	*	BS

3. Gen. XVII (813): Breeding black pepper for *Phytophthora* resistance, [K. Nirmal Babu and T.E.Sheeja] [2007-2010]

Decisions:

1. The project is approved
2. T.E. Sheeja will associate with the project

Technical programme	Quarterly work schedule				Personnel
	I	II	III	IV	
Maintenance and field characterization of 115 progenies of P1 X Subhakara cross and collection of phenotypic data from field planted progenies	*	*	*	*	KNB.TES
Screening of progenies of P1 X Subhakara cross (mapping population) against <i>Phytophthora</i> **		*	*		KNB**
Molecular characterization of progenies of P1 X Subhakara cross		*	*	*	KNB.TES
Crossing and developing mapping population for tagging <i>Phytophthora</i> resistance - Subhakara X P24 cross		*	*	*	KNB
Multiplication of a population from germplasm and hybrids and resistant lines for validation**	*				KNB.TES**
Planting and maintenance of a population from germplasm and resistant lines developed so far in the field for evaluation and association mapping**		*	*	*	KNB.TES

** These items will be carried out in a project on identification of black pepper genotype with multiple resistance against *Phytophthora* and nematode

4. Gen. XXI (813): Breeding black pepper resistance to “pollu” beetle [K. V. Saji, S. Devasahayam] [2006-2010]

Decisions:

1. The project is approved

Technical programme	Quarterly work schedule				Personnel
	I	II	III	IV	
Raising bush pepper for hybridization		*	*		KVS
Establishment of crossing blocks	*	*	*		KVS, SD
Hybridization and raising seedling progenies	*	*		*	KVS
Raising seedling progenies in the nursery			*	*	KVS
Screening seedling progenies in the nursery			*		SD

5. Gen. XXII (813): Breeding black pepper for tolerance to drought [T.E. Sheeja, K.S. Krishnamurthy] [2006-2010]

Decisions:

1. The project is approved

Technical programme	Quarterly work schedule				Personnel
	I	II	III	IV	
Pollination of drought tolerant lines with Subhakara	*	*			TES
Raising progenies			*	*	TES
Multiplication of seedlings raised during 2006-07	*	*	*	*	TES, KSK
Screening for draught tolerance			*	*	KSK

6. Gen. XXIII (813): Breeding black pepper for developing resistance to *Radopholus similis* and its molecular genetic analysis [Johnson K. George and B. Krishnamoorthy] [2007-2010]

Decisions:

1. The project is approved

Technical programme	Quarterly work schedule				Personnel
	I	II	III	IV	
Intervarietal hybridization involving Subhakara x Acc. 820 and Subhakara x HP 39	*	*			JKG, BK
RAPD and ISSR profiling of cultivars (resistant vs. susceptible)			*	*	JKG*

*Dr. S.J.Eapen, will undertake the screening of the seedling from the above crosses under the project "Screening germplasm——spice crops"

7. Gen. X (813): Breeding cardamom for high yield and resistance to 'katte' disease [1976-2007] [D. Prasath and M. N. Vennugopal]

Decisions:

1. IRC recommended the closure of the project and consequently the RPEIII will be submitted by November 2007
2. A new project with the objectives of breeding cardamom for resistance to biotic stress will be proposed by Dr. Senthil Kumar
3. The promising short listed cardamom accessions will be evaluated in MLT under AICRPS
4. Research paper on genetics of 'katte' resistance would be prepared
5. A new project on bar coding of cardamom germplasm will be proposed by Dr. K.N. Babu and D. Prasath

8. Gen. XV. (813): Investigations on the reasons and solutions for the absence of seed set in ginger (*Zingiber officinale* Rosc.) [2005-2010]
[R. Ramakrishnan Nair and D. Prasath]

Decisions:

1. Meiotic studies should be included in the technical programme for 2007-2008.

Technical programme	Quarterly work schedule				Personnel
	I	II	III	IV	
Screening the ginger germplasm accessions for pollen fertility and pollination studies		*	*		RRN
Raising M2 generation of the irradiated material and recording observations.	*		*		RRN, DP
Chromosome number analysis of the plants resulted from colchicines treatment.	*				RRN
Meiotic studies in ginger		*			RRN

9. Biotech. VII (813): ISSR markers for black pepper improvement [2004-2007] [Johnson K. George and B. Sasikumar]

Decisions:

1. IRC recommends the closure of the project. RPFIII will be submitted by November 2007

10. Biotech. VIII (813): Molecular characterization and *in vitro* propagation in *Myristica* sp. [2004- 2007] [T. E. Sheeja and B. Krishnamoorthy]

Decisions:

1. IRC recommends the closure of the project. RPFIII will be submitted by November 2007

11. ICAR-CIB2: Cloning of *Phytophthora* resistance and defense genes from *Piper colubrinum* [2004-2007] (Johnson K George and M. Anandaraj)

Decisions:

1. The project may continue as institute project until an external funding is obtained
2. The paper titled: "Induction of chitinase in *Piper colubrinum* in response to inoculation with *P. capsici*" may be sent for publication.

Technical programme	Quarterly work schedule				Personnel
	I	II	III	IV	
Gene walking using DNA as template	*	*			JG
Gene walking using RNA and sequencing of amplified products	*	*	*		JG

12. ICAR- CIB 1: Strengthening the cause of Geographical Indication of major spices using molecular, morphological and quality profiling techniques. [2004-2007] (B. Sasikumar and T. John Zachariah)

Decisions:

1. The remaining technical programme will continue

Technical Programme	Quarterly work schedule*				Personnel
	I	II	III	IV	
Physical, biochemical and molecular characterization of traded Cochin ginger and Chinese ginger along with genuine botanical varieties	*	*	*		BS, TJZ
Physical, biochemical and molecular characterization of AFT and Rajapuri turmeric	*	*	*		BS
HPLC profiling of pigments of traded turmeric	*	*	*		BS
GC/MS profiling of essential oils of traded turmeric and ginger	*	*	*		BS

* The project will be closed by Oct 2007

13. Hort. IV (813): Rootstock-scion interactions in tree spices [1998-2008] [J. Rema, K. Abirami]

Decisions:

1. Technical programmes are carried out as per the technical programme

Technical programme	Quarterly work schedule				Personnel
	I	II	III	IV	
Evaluation of nutmeg grafts for productivity	*	*	*	*	JR
Evaluation of nutmeg grafts for drought tolerance	*	*	*	*	JR
Training studies in nutmeg grafts	*	*	*	*	JR, KA
Pruning studies in nutmeg	*	*	*	*	JR, KA
Evaluation of nutmeg grafts (plagiotropic v/s orthotropic grafts)	*	*	*	*	JR, KA
<i>In vitro</i> multiplication of clonal root stock of nutmeg	*	*	*	*	JR
Effect of hormone on induction of orthotrophy	*	*	*	*	KA

Expertise of K.S. Krishnamurthy will be sought for few technical programme

14. ICAR-CPPHT- 3: Development of chilli (*Capsicum annum* L.) hybrids for paprika (oleoresin) production [2004-2007] [T. John Zachariah and K.N.Shiva]

Decisions

1. The project is closed and RPF III will be submitted by November 2007

15. ICAR- CPPHT- 4: Chemical characterization of *Cinnamomum* germplasm [2005-2008] [N K Leela & J. Rema]

Decisions

1. All technical programmes carried out as per the schedule

Technical programme	Quarterly work schedule				Personnel
	I	II	III	IV	
Evaluation of cinnamon germplasm for bark oil content and identification of components	*	*			NKL, JR
Evaluation of cinnamon germplasm for bark oleoresin content	*	*			NKL, JR
Evaluation of cinnamon germplasm for leaf oil content and identification of constituents	*	*	*		NKL
Isolation, purification and characterization of crystalline constituents from <i>Cinnamon lamala</i> and <i>C. malabarum</i>	*	*	*	*	NKL

16. Biotech. IX (813): Development of transgenic for resistance to *Phytophthora* and drought in Black pepper [2006-2011] [K. Nirmal Babu and T.E.Sheela]

Decisions:

1. Biosafety procedure must be strictly adhered with in order to avoid inadvertent escape of transgene
3. Dr. K. N. Babu to contact Dr. Veluthambi to obtain chitinase and glucanase genes.
4. Dr. T.E. Sheela to associate in the project.
5. Dr. Suseela Bhai will help in screening against *Phytophthora* and K.S.Krishnamurthy will help in screening for drought resistance

Technical programme	Quarterly work schedule				Personnel
	I	II	III	IV	
Screening of transgenic black pepper against <i>Phytophthora</i>	*	*	*		KNB
Screening of transgenic black pepper against drought	*	*	*		KNB, TES
Multiplication of transgenic black pepper with osmotin	*	*	*	*	KNB, TES

Plant regeneration from Agrobacterium mediated transformation with Glucanase	*	*	*	*	*	KNB. TES
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17. Hort. VI. (813): Induction of orthotrophy in plagiotropic grafts in nutmeg [2006-2008] [K Abirami, K.S. Krishnamurthy]

Decision:

1. Technical programme could not be started as the Principal investigator is in mandatory FOCARS training at NAARM, Hyderabad
2. This project is merged with Hort IV (813) and becomes one of the technical programmes

18. DBT- CIB 3– Development of microsatellite markers and characterization of curcuma spp. [B Sasikumar, T E Sheeja]

Decisions:

1. The technical programme was carried out as per schedule

Technical programme	Quarterly work schedule				Personnel
	I	II	III	IV	
Appointment of staff. Inviting quotations and preparation of comparative statement for the purchase of equipments	*				BS
Isolation of DNA, restriction analysis and selection of desired fragment		*	*	*	TES
Extraction of biologically active proteins/ polypeptides from <i>Curcuma</i> species and AE HPLC analysis of rhizome proteins			*	*	BS

19. Gen. XXV (813): Genetics of seedling progenies of turmeric (*Curcuma longa* L) [R.R.Nair and K.N.Shiva] [2007-2011]

Decisions:

1. The project is approved for four years

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Planting and Multiplication of seedling progenies and their mother plants in pots and recording of morphological characters	*			*	RRN, KNS
Cytological analysis of seedling progenies and their mother plants	*	*			RRN

II Division of Crop Production and Post Harvest Technology

Mega Project-3: System approach for sustainable production of spices [Project Leader: K. Kandiannan]

1. SSC. IV (813): Nutrient Budgeting For Improved Varieties of Spices [2005-2010] [V. Srinivasan, R. Dinesh, C.K. Thankamani, S.J. Anke Gowda and S. Hamza]

Decisions:

1. Second order rotatable design should be used for analyzing the data.

Technical programme	Quarterly work schedule				Personnel
	I	II	III	IV	
Validating the p/zr ratio requirement increasing the yield and quality increasing the yield and quality in ginger.	*	*	*	*	VS. SH. RD
Quantifying the nutrient removal from soil & fertilizers for cardamom.		*		*	VS. AG
Validating the target yield equation for yield in black pepper ginger& turmeric and observing the equality.	*	*	*	*	VS. CKT
The efficacy of organic amendments 4 micro organisms in nutrient release ion soil & its crop uptake	*	*	*		VS. RD. SH

2. SSC. III (813): Assessment of quality of soils under spices based cropping systems [2005-2008] [R. Dinesh. V. Srinivasan, S. Hamza]

Decisions:

1. Expertise of Dr. T.E. Sheeja and Dr. Santhosh J Eapen will be utilized for few of the technical programme on nematodes

Technical programme	Quarterly work schedule				Personnel
	I	II	III	IV	
Soil sampling from various sites under spices	*	*	*		RD
Analyses for physico-chemical parameters		*	*		VS
Analyses for biochemical parameters		*	*	*	SH
Analyses for microbial indices/ community structure		*	*	*	RD

3.IPL - CPPHT 1: Evaluation of Sulphate of Potash (SOP) as Potassium Source on Growth, Yield and Quality of Black pepper [2004 - 2007] [K. Kandianan and V. Srinivasan]

Decisions:

1. Final report and RPF III to be submitted.

4. ICAR – CPPHT- 1: Network Project on Organic Farming [2004-20012] [V. Srinivasan, C. K. Thankamani]

Decision

1. The project will be continued in the XI Plan

Technical programme	Quarterly work schedule				Personnel
	I	II	III	IV	
Perforce evaluation of spice under difference management systems.	*	*	*	*	VS,CKT
Nutrient management under organic farming	*	*	*	*	VS,CKT
Insect pest & disease management under organic farming.	*	*	*	*	VS

Expertise of Dr. A.Kumar and T. John Zachariah will be sought for few technical programme

5. Agr. XXIV (813): Phenology of ginger and turmeric [2006-2009] [K. Kandiannan, Utpala Parthasarathy]

Decisions:

1. Title may be changed as "Phenology of Ginger & turmeric"

Technical programme	Quarterly work schedule				Personnel
	I	II	III	IV	
Influence of time of planting on ginger and turmeric phenology	*	*	*	*	KK, UP
Evaluation of varieties in relation to phenology	*	*	*	*	KK, UP

6. Agr. XXV (813): Evaluation of legumes as intercrops in black pepper plantation [2006-2010] (K. Kandiannan, R. Dinesh, S. Hamza)

This project is merged with Agr XXVII (813)

7. Agr. XXVII (813): Enhancing the productivity in black pepper by intercropping [2006-2009] [C.K.Thankamani, K Kandiannan]

Decisions:

1. Dr. C.K. Thankamani will head this project
2. Studies on effect of intercrops on black pepper would be initiated
3. Medicinal plants with good market potential will be included in the trials

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Raising selected intercrops	*	*	*	*	CKT

Evaluation of legumes	*	*		*	*	KK
Study of yield of main and inter crops	*	*		*	*	CKT, MS
Nutrient analysis	*	*		*	*	CKT

8. Agr. XXVIII (813): Input Use efficiency in turmeric in relation to quality [K. Kandianman and S. Hamza] [2007-2010]

Decisions:

1. The project is approved for three years

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Short listing the nutrient elements influencing curcumin yield in turmeric	√	√			KK, SH
Studying the influence of these specific nutrients on yield and quality of turmeric under field conditions		√	√	√	KK, SH
Influence of weather on quality of turmeric		√	√	√	KK, SH

Mega Project-4: Production physiology of spice crops [Project Leader: B. Chempakam]

1. Phy. VII (813): Physiological and biochemical basis for productivity in black pepper [2003 -2008 [K. S. Krishnamurthy and B. Chempakam]

Decisions:

1. All technical programmes carried out as per the schedule

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Assay of NR and MDH activities during pre bearing period	*	*	*		KSK, BC
Assay of photosynthetic enzymes		*	*		KSK, BC
Measurement of carbohydrates in different plant parts during pre bearing & bearing periods.	*			*	KSK
Use of ISSR markers to distinguish high yielder			*	*	KSK

2. Phy. VIII (813): Mechanism of drought tolerance in cardamom and black pepper [2005-2008] [S.J. Anke Gowda and K.S. Krishnamurthy]

Decisions:

1. All technical programmes carried out as per the schedule

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	

Physiological parameters and enzyme activities (catalase, peroxidase, SOD) in selected	*	*				SJA, KSK
Evaluation of four cross combinations of cardamom (hybrids and selected seedlings) for	*	*	*	*		SJA
Photosynthesis and gas exchange characteristics of cardamom and black pepper					*	SJA, KSK
Screening black pepper germplasm for drought tolerance		*			*	KSK
Studies on SOD isozymes and protein profiles in black pepper			*		*	KSK
Use of ISSR markers to characterize drought tolerance in black pepper		*	*	*		KSK

3. ICAR-CPHT-2: Impact, Adaptation and Mitigation of Climate Change Effects on Growth and Productivity of Plantation Crops with Special Reference to Coconut and Black pepper. [2004-2007] (Co-PIs- K.S. Krishnamurthy, K. Kandannan and B. Chempakam; Main Center- CPCRI, Kasaragod, Sub Center- IISR, Calicut)

Project is closed

Mega Project-5: Value addition and post harvest processing of spices [Project Leader: T. John Zachariah]

1. PHT. III (813): Studies on drying and storage parameters in black pepper, ginger, turmeric and nutmeg. [2004-2009] [E. Jayashree, T. John Zachariah and K. N. Shiva]

Decisions:

1. Technical programme identified in this project will be carried out under PHTIV (813)
2. Project will be revived when PI joins after study leave

2. PHT. IV. (813) Evaluation for physical and biochemical quality of spices [2005-2009] [T. John Zachariah, K.N. Shiva N.K. Leela]

Decisions:

1. Dr. K. N. Shiva associate in the project PHT. IV (813)
2. Due credit to be given all to all centers, which participated in the project

3. Five common varieties may be selected in all the locations to study the *Gene x Environment* interaction
4. M.Sc student may be taken on contract basis to complete the quality analysis
5. Experiments will have to be redesigned according to the standard statistical procedures

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Evaluation of pepper samples for caryophyllene	*	*	*		TJZ
Evaluation of ginger accessions			*		TJZ
Evaluation of cardamom samples			*	*	NKL. TJZ
Storage of black pepper in selected containers under suitable storage atmosphere and studying chemical quality profile.	*	*			TJZ . KNS
Drying of ginger and turmeric in electrical driers			*	*	TJZ. KNS

3. KSCSTE- CPPHT-1- Kerala State Council for Science, Technology and Environment project: Production of white pepper through fermentation technology [2005-2008] [T. John Zachariah, A. Kumar and E. Jayashree]

Decisions:

1. Details of the project are to be presented in ITMC for further action.

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Preparation of white pepper from green pepper bulk samples using identified organisms			*	*	AK
Evaluation of chemical quality of white pepper		*	*		TJZ .AK
Preparation of final report			*	*	AK. TJZ

4. ICAR- CPHT- 5: Prevention and management of Mycotoxin contamination in commercially important Agricultural Commodities [2004-2007] [B. Chempakam, M. Anandaraj, N.K. Leela and E. Jayashree]

Decisions:

1. All technical programmes carried out as per the schedule

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Survey & collection of samples in Erode& Idukki districts	*	*			BC, MA
Periodic analysis of stored samples for quality parameters	*	*			BC, NKL
Identification of toxigenic and non-toxigenic strains of <i>Aspergillus</i> sp.	*	*			BC, MA

5. DBT- CIB 2: Determination of purity of powdered market samples of major spices using PCR techniques, protein profiling and /or HPLC techniques. [2004-2007] [B. Sasikumar and B. Chempakam]

Decisions:

1. IRC recommends the closure of the project. RPF 3 will be submitted by November 2007

Mega Project-6: Production of nucleus planting materials of improved varieties of spice crops [Project Leader: C. K. Thankamani]

1. NHM-CPPHT-1: Production of planting materials of improved varieties of spice crops [2005-2010] [C. K. Thankamani and S. J. Anke Gowda]

Decisions:

1. Expertise of a pathologist will be utilized to carry out certain technical programme
2. Appropriate statistical design will be used for analyzing the data

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Monitoring the production of black pepper, ginger turmeric and nutmeg	*	*	*	*	CKT
Production and distribution of cardamom seedlings, cardamom suckers and Black pepper	*	*	*	*	SJA
Storage studies of ginger					
Maintenance of mother plants of black pepper	*	*	*	*	CKT
					CKT

Mega project 13. Investigations on nutraceutical and pharmacokinetic aspects of spices [Project Leader: A. Shamina]

1. Biochem. III (813): Studies on the nutraceutical properties of bioactive compounds in few spices [A. Shamina, K Abirami]

Decisions:

1. Turmeric, curry leaf, Garcinia and tamarind may be included instead of Allspice for the study

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Preparation of extracts from turmeric, cinnamon, curry leaves, Garcinia and tamarind	*	*	*		AS, KA
Standardization of methods to quantify antioxidant property <i>in vitro</i>	*	*			AS
Assay of antioxidant property of spice extracts <i>in vitro</i>			*	*	AS
Creation of database	*	*	*	*	AS, KA

2. Biochem. IV (813): Exploration of spices for natural food colours and pigments [2007-2010] [KN Shiva, A Shamina]

Decisions:

1. A new project on natural food colors is to be included under the same mega project with Dr. K.N. Shiva as PI and Drs. A. Shamina, as associate
2. Expertise of K. Abirami and D. Prasath will be used for few technical programme

Technical Program		Quarterly work schedule				Personnel	
		I	II	III	IV		

Collection of germplasm / samples	*	*	*	KNS
Standardization of extraction and isolation of procedures		*	*	AS. KNS
Identification of the plant parts rich in colors		*	*	AS. KNS

Division of Crop Protection

Mega Project-7: Identification, characterization and development of diagnostics against pests, pathogens nematodes of spice crops [Project Leader: M. N. Venugopal]

1. Path. XV (813): Investigations on diseases of vanilla [2003-2008] [A. Ishwara Bhat and C.N. Biju]

Decision

2. Expertise of Dr. R. Suseela Bhai will be utilized for a few technical programme
3. Dr. C.N.Biju will join the project
4. Dr. M. N. Venugopal will dissociate from the project.
5. Identified program will continue

To be closed
from project on
continuation

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Production of antiserum against Potyvirus associated with vanilla	*	*			AIB
Standardization of detection based on ELISA			*	*	AIB
Molecular characterization of the Potyvirus		*	*	*	AIB
Standardization of detection based on RT-PCR			*	*	AIB

2. ICAR- CP 2: Molecular characterization and maintenance of National Repository of *Phytophthora* [2004-2007] [M. Anandaraj, R. Suseela Bhai, A. Ishwara Bhai]

To be done

Decisions:

1. All technical programmes carried out as per the schedule

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Maintenance of <i>Phytophthora</i> repository	*	*	*	*	MA
Testing pathogenicity of stored cultures of <i>Phytophthora</i>	*	*	*	*	MA, RSB
Developing Species specific primers	*	*	*	*	MA, AIB
Molecular analysis using AFLP		*	*	*	MA, AIB

Mega project 8: Conventional and molecular approaches for developing pest, pathogen and nematodes resistance in spice crops [R. Suseela Bhai, S.J.Eapen. A.I.Bhat]

1. Crop Prot. 1. 4 (813): Identification of black pepper genotypes with multiple resistance against *Phytophthora* & nematodes [2006-2009] [R. Suseela Bhai and Santhosh J Eapen]

Decisions:

1. Technical programmes were carried out as per the technical programme

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Screening short listed cultivars/sections against <i>Phytophthora</i> & Nematodes		*	*	*	RSB
Selection from open pollinated seedlings for <i>Phytophthora</i> and nematode resistance	*	*	*	*	RSB, SJE
Field testing of promising lines	*	*	*	*	RSB, SJE
Screening of root stocks and their grafts against <i>Phytophthora</i> and nematodes	*	*	*	*	RSB, SJE
Screening of progenies of inter varietal crosses against <i>R. similis</i>	*	*	*	*	SJE
Screening of progenies of PIX Subhakara cross (mapping population) against <i>Phytophthora</i>	*	*	*	*	RSB
Screening transgenic against <i>Phytophthora</i>	*	*	*	*	RSB

2. Ent. XIII (813): Screening of germplasm accessions of spices and evaluation of antibiosis resistance to major insect pests [2006- 2011]
[T.K. Jacob and S. Devasahayam]

Decision:

1. All technical programmes carried out as per the schedule

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Field screening of germplasm of black pepper against pollu beetle			*	*	TKJ, SD
Field screening of germplasm of turmeric against shoot borer			*	*	TKJ, SD
Study of the life cycle of shoot borer on susceptible ginger/ turmeric accessions		*	*	*	TKJ, SD
Study of the life cycle of pollu beetle on Panniyur 1. (Susceptible accessions)		*	*	*	TKJ, SD

3. DBT-CP 3: Genetic transformation of black pepper to confer resistance against viruses [2006-09] [AI Bhat and R.Suseela Bhai]

Decisions:

1. Identified program will continue.

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Preparation of gene construct using ORF III of PYMoV in plant transformation vector and its mobilisation in to <i>Agrobacterium tumefaciens</i>	*	*			AIB
Transformation and regeneration of different black pepper explants with gene construct harboring CMV CP gene	*	*	*	*	AIB, RSB

Mega Project-9: Developing integrated pest and disease management strategies in spice crops [Project Leader: S. Devasahayam]

1. Path. XVI (813): Etiology and management of rhizome rot complex in ginger and turmeric [2004-2009] [A. Kumar, R. Suscela Bhai]

Decisions:

1. Include earlier recommendations on turneric disease control as check in future experiments.
2. Root exudates of Brassica and cruciferae may also be tried for imparting resistance to rhizome rot in ginger.
3. Ginger somaclones may be rescreened for *Pythium* tolerance
4. Dr. Shiva will dissociate and Dr. Prasath will lend external support.

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Screening of ginger germplasm for tolerant to soft rot	*	*	*		AK, RSB
Screening of turmeric germplasm for tolerant to soft rot	*	*	*		RSB, AK
Identification of <i>Pythium</i> causing soft rot of ginger and turmeric	*	*	*	*	AK, RSB
Evaluation of biofumigation for management of rhizome rot of ginger	*	*	*	*	AK, RSB
Field trial for integrated management of rhizome rot of ginger and turmeric and	*	*	*	*	AK, RSB
Investigations on mechanisms of resistance of <i>Curcuma amada</i> against bacterial wilt		*	*	*	AK, RSB

2. Org. Chem. II (813): Characterization of bioactive compounds with pesticide properties [2002-2008] [N. K. Leela*]

Decisions:

- 1.The results will be presented only in ITMC
- 2.The project will be closed in Oct 2007

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Characterization of fungitoxic compounds	*	*			NKL
Studies on the efficacy of the compounds at different growth stages of <i>P. capsici</i>	*	*			NKL

The coworker is not opted, as the project will be closed in Oct 2007.

3. Biocontrol. II (813): Development of consortium of bio inoculants for management of pests, diseases and nematodes in spices [2004-2008] [M. N. Venugopal, Santhosh J. Eapen, C.N. Bijju]

Decisions:

1. All technical programmes carried out as per the schedule
2. Expertise of A.Kumar and R. Susela Bhai will be sought for few technical programmes

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Evaluation of promising isolates under greenhouse conditions against soil borne pathogens (Black		*	*	*	SJE *
Field evaluation of bioconsortia against soil borne pathogens		*	*	*	MNV SJE*
Evaluation of 853, 859 <i>P. chlamydosporia</i> , P26 and consortium of IISR 6,8,13,51,151,853 under different pathogen levels		*	*	*	SJE*
Demonstration of technologies for management of foot rot and slow decline		*	*	*	SJE
Synergistic action of NaCl and BCA on <i>Phytophthora capsici</i>	*	*	*	*	

* R. Susela Bhai and A.Kumar will help in conducting these technical programmes

RSB

Close the project - start a new project under demonstration - in farmer plots

Plans on the material for recommendation to Dr. KSK

36

Give description agents to all sections for supplying in their plots

4. DBT-CP 2: Endophytic bacteria for biological system management of *Radopholus similis*, the key nematode pest of black pepper (*Piper nigrum* L.) [2003-2008] [Santhosh J. Eapen and A. Kumar]

Decisions:

1. R.R. Nair will dissociate from this project

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Identification of promising endophytic bacteria	*	*			AK, SJE
Registration of bacterial cultures with IMTECH	*	*			SJE, AK
Field evaluation promising endophytic bacteria	*	*	*		SJE, AK
Response of black pepper varieties to endophytic bacteria BP35	*	*	*	*	AK, SJE
Evaluation of the induction of systemic resistance-using salicylic acid and potential BCAs	*	*	*	*	AK, SJE
Studies on colonization of endophytic bacteria in black pepper					AK, SJE

Formulation
Co-multiplication
Diversity, multi
& community
- rest
study
write

5. Ent. XII (813): Bioecology and integrated management of shoot borer *Conogethes puiciferalis* Guen. infesting turmeric [2005-2009] [S. Devasahayam and T. K. Jacob]

Decisions:

1. Programme is as per schedule and shall continue.

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Seasonal population dynamics of shoot borer on turmeric	*	*	*	*	SD

Documentation, conservation and culturing of natural enemies of shoot borer	*	*	*	SD, TKJ
Evaluation of natural products against shoot borer	*	*	*	SD
Evaluation of insecticides against shoot borer	*	*	*	SD

6. Hort. V (813): Rootstock intervention to manage root infection of *Phytophthora* and nematodes in black pepper [2006-09] [P. A. Mathew and K. Abirami]

Decisions:

1. Expertise of Dr. R. Suseela Bhai and Dr. S.J. Eapen will be sought for few technical programmes.

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Raising cuttings and grafts of the rootstocks/ wild species and testing against <i>Phytophthora</i> and nematodes	*	*	*	*	PAM, KA

7. Path. XVII (813): Characterization, epidemiology and management of *Colletotrichum* spp. infecting black pepper, cardamom and turmeric [2006-2009] [M. N. Venugopal and Biju C. N*]

Decisions:

1. Dr. D. Prasath shall dissociate from the project.
2. Dr. C.N.Biju will associate in the project
3. For molecular characterization work, assistance from of scientists from crop protection may be sought

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Isolation of <i>Colletotrichum</i> spp from black pepper, cardamom, turmeric and	*	*	*	*	MNV, CNB

8. ICAR-CP 4: Application of Microorganisms for Agriculture and Allied Sectors: Nutrient management, PGPR and Biocontrol [2006-08]
[M. Anandaraj, R. Dinesh, and A. Kumar]

Decisions:

1. All technical programmes carried out as per the schedule
2. Dr.N.K.Leela will be dissociated from the project and her expertise will be sought for few technical programme

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Isolation of rhizobacteria from spice crops	*	*	*	*	MA, AK
Isolation of endophytic bacteria from ginger and its evaluation against soft rot and bacterial wilt pathogen	*	*	*	*	AK, MA
Identification and diversity analysis of efficient bacteria using biochemical and molecular tools	*	*	*	*	A.K. MA
Selection of isolates efficient for Indole Acetic Acid (IAA) production, Siderophores production, Nitrogen fixation, P-solubilization and disease suppression	*	*	*	*	MA. RD

IV. Division of Social Sciences

Mega Project-10: Economics, statistics and modeling [Project Leader: M. S. Madan]

1. Econ. III (813): Remote sensing and GIS in evaluating the impact on socio-ecological changes on spices production in Western Ghats region [2003-2008] [M. S. Madan and A.K. Johnny]

*Project title to be changed
To be presented in the study circle*

Decisions:

- 1. Dr. Madan would visit Wyand district along with Drs. Jacob, D. Prasath & C.K. Thankamani to conduct a survey on technology adoption.
- 2. Details of farmers collected released varieties from Peruvannamuzhi farm can be obtained from SIC. IISR Farm. Peruvannamuzhi for analyzing the technology adoption
- 3. Ulpala Parthasarathy will dissociate from the project

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Analysis of survey data collected from Wyand district	*	*			MS
Survey in Idukki district		*	*		MS, AKJ
Reporting				*	MS, AKJ

2. Econ. IV (813): Assessing sustainability of cropping systems involving spices (M. S. Madan, A. K. Johnny and K. Jayarajan)

Decisions:

- 1. The project is approved for three years

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Preparing questionnaire	*				MSM, AKJ
Pre-testing and finalizing questionnaire		*			MSM, KJ
Field survey			*	*	MSM, AKJ, KJ

Mega Project-11: Extension and training [Project Leader: P. Rajeev]

I. Ext. IV (813): Training of research and extension workers [2005-2010] [P. Rajeev and T. K. Jacob]

Decisions:

1. All technical programmes carried out as per the schedule

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Planning and preparation of training schedule	*	*			PR, TKJ
Organizing and conducting training		*	*	*	PR, TKJ
Evaluation and recording feed back.		*	*	*	PR
Technology Mission for Integrated development of NE states including Sikkim			*	*	PR

2. Ext. VI (813): Agricultural Technology Information Center [2004-2007] [P. Rajeev]

Decision:

- 1. Various kinds of services of ATIC should be (e.g. farmers visit to IISR, KVK and Farms at CRC, questions through email, phone calls, letters etc) will have to be categorized and recorded and Record the number of beneficiaries under each of the category
- 2. Recent publication on 'Production Technology of Spices' would be sent to Dr. Joshi (OL) for Hindi translation and the same would be translated into Malayalam, Tamil and Kannada.
- 3. IRC recommends closure of the project. Consequently RPF III will be submitted by November 2007. The above project to become a part of a project on diffusion and impact [Ext. V. (813)].

2. Ext. V (813): A study on diffusion, adoption and impact of varieties released from IISR and scientific crop management practices [2006-2009] [Rajeev, P and M.S.Madan]

Decision:

- 1. Material Transfer Agreement will be signed before supplying the released varieties or elite accessions to the Universities
- 2. The management of ATIC will be merged with this project
- 3. Technical program for Appangala to be included in the project.

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Facilitating technology discrimination sources through ATIC	*	*	*	*	PR, MSM
Survey of technology diffusion and Impact			*	*	PR, MSM

Mega project-12: Developing customized software and expert systems on spices [2004-2007] [Project Leader: Santhosh. J. Eapen, P. Rajeev, K. Jayarajan]

1.Stat. I (813): Development of databases and software [2004-2007] [P. Rajeev and K. Jayarajan]

Decisions:

1. Head, CRC, Appangala may explore the possibilities of obtaining broadband connection at Madikeri
2. Dr. Santhosh J. Eapen will give external support to this project
3. This project need to be extend till 2010

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Refinement of ARISoft	*	*	*		KJ
Designing website	*	*			KJ
Developing software on spice cultivation Calendar (Pepper, Cardamom, Ginger, Turmeric)	*	*	*	*	KJ, PR

2. DBT- SS 1: Distributed Information Sub-Centre (Bioinformatics Centre) [2000-2007] [Santhosh. J. Eapen]

Decisions

1. HODs and Study Circle Secretary to ensure that due acknowledgment is given for availing Bioinformatics facilities.

Technical Program	Quarterly work schedule				Personnel
	I	II	III	IV	
Bioinformatics training	*		*		SJE
Development of database of plant associated bacteria and software	*	*	*	*	SJE
Druggability of spice compounds	*	*	*	*	SJE

List of Projects

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Abbreviations:

BK	:	B. Krishnamoorthy
KVS	:	K. V. Saji
JKG	:	Johnson K. George
KNS	:	K. N. Siva
KA	:	K. Abirami
RS	:	R. Senthil Kumar
BS	:	B. Sasi Kumar
JR	:	J. Rema
RRN	:	R. Ramakrishnan Nair
PAM	:	P.A. Mathew
KNB	:	K. Nirmal Babu
TES	:	T.E. Sheeja
DP	:	D. Prasath
BC	:	B. Chempakam
NKL	:	N.K. Leela
VS	:	V. Srinivasan
RD	:	R. Dinesh
KSK	:	K.S. Krishnamurthy

CKT	:	C. K. Thankamani
TJZ	:	T. John Zachariah
KK	:	K. Kandianan
UP	:	Utpala Parthasarathy
SH	:	S. Hamza
SJAG	:	S. J. Anke Gowda
EJ	:	E. Jayashree
AS	:	A. Shamina
AIB	:	A. Ishwara Bhat
RS	:	R. Suseela Bhai
MNV	:	M.N. Venugopal
AK	:	A. Kumar
SJE	:	Santhosh J. Eapen
SD	:	S. Devasahayam
TKJ	:	T. K. Jacob
MSM	:	M. S. Madan
PR	:	P. Rajeev
KJ	:	K. Jayarajan
MA	:	M. Anandaraj
AKJ	:	A. K. Johny

Compilation

A.Kumar, Secretary (IRC), IISR, Calicut

Rapporteur

D. Prasath, Scientist (SS), IISR, Calicut
A. Shamina, Sr. Scientist, IISR, Calicut
T.E.Sheeja, Scientist (SS), IISR, Calicut

Cover Design

A. Sudhakaran, Artist cum Photographer, IISR, Calicut

