



ANNUAL REPORT 2009-10



Andhra Pradesh Horticultural University

Venkataramannagudem, West Godavari District – 534 101, A.P.

APHU FIRST ZREAC MEETINGS



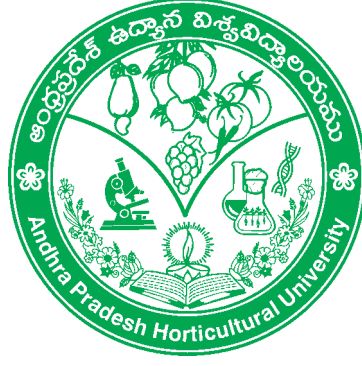
ZREAC Meeting of Coastal Zone at Tadepalligudem held on 23-04-2010



ZREAC Meeting of Rayalaseema Zone at Tirupati held on 28-04-2010



ZREAC Meeting of Telangana Zone at Rajendranagar held on 03-05-2010



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APHU, Annual Report, 2009-10

Published by

Dr. S.D. Shikhamany

VICE - CHANCELLOR

Andhra Pradesh Horticultural University

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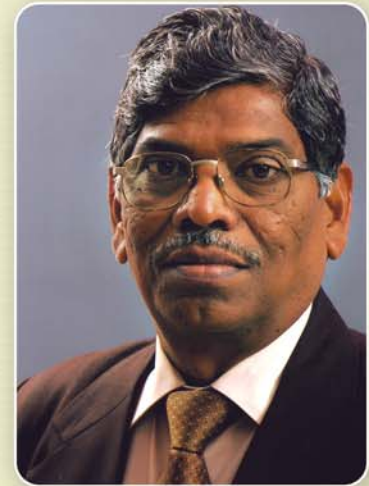
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Dr.S.D.SHIKHAMANY
VICE-CHANCELLOR
Andhra Pradesh Horticultural University



Foreword

I am happy to present the Second Annual Report of Andhra Pradesh Horticultural University (APHU). It is a compiled document of the university's activities during the year 2009-10.

Andhra Pradesh Horticultural University was established at Venkataramannagudem, West Godavari District, Andhra Pradesh on 26th June, 2007. Andhra Pradesh Horticultural University second of its kind in the country, with the mandate for Education, Research and Extension related to horticulture and allied subjects. The university at present has 4 Horticultural Colleges, 5 Polytechnics, 27 Research Stations and 3 KVKs located in 9 agro-climatic zones of the state.

Andhra Pradesh Horticultural University offers B.Sc. (Hons.) Horticulture, M.Sc. (Horticulture) with specialization in four areas, namely i) Fruit Science, ii) Vegetable Science, iii) Floriculture & Landscape Architecture, iv) Spices, Plantation, Medicinal & Aromatic crops and Ph.D (Horticulture). The university runs on the land grant pattern followed in the USA, integrating Horticultural Education, Research and Extension. With an intension to provide self employment to rural youth and also to make use the services of rural youth, the university has established five Horticultural Polytechnics to offer two year Diploma in Horticulture.

The Andhra Pradesh Horticultural University Board of Management met 9 times during the year. Three Academic Council meetings, one REC and three ZREAC meetings were held during the year.

In B.Sc. (Hons.) Horticulture, M.Sc. (Horticulture) and Ph.D (Horticulture), a total of 980, 83 and 15 students are on roll along with 266 students in Diploma course.

The Andhra Pradesh Horticultural University is conducting basic, applied, location / region specific and anticipatory research for the overall development of horticultural crops in the state at 27 research stations.

In Coriander, a variety namely APHU Dhania –I and in Fenugreek, a variety namely APHU Menthi-I are released during the year. In Paprika LCA-436, in Hot Pepper LCA-625 and in Ajowan LCA-26 are under minikit testing.

Alphonso fruits obtained from Vizianagaram and Rampachodavaram mandal of East Godavari Districts were comparable in size, shape and colour of fruit as well as pulp to Ratnagiri Alphonso. The incidence of spongy tissue was only one in 30 (3.3%) that too in over ripened fruits. This shows the potential

of growing Alphonso mango for export in the district of Srikakulam, Vizianagaram and Visakhapatnam districts of Andhra Pradesh.

The university scientists are involved in popularizing the proven technologies and improved varieties developed through various extension activities viz., All India Radio, Print and Visual media, Participation in Exhibitions, *Krishi melas*, *Rythu chaitanya yatra*, *Raithu Sadassulu* and *Adarsha Rythu* programmes.

I take this opportunity to thank the Indian Council of Agricultural Research and Government of Andhra Pradesh for their financial and technical support to the university.

I am thankful to Hon'ble members of Board of Management, Academic council, Research and Extension Council for their timely guidance and cooperation extended in the university administration.

I am whole heartedly thankful to University officers, Associate deans, Principals, Heads of Research Stations and supporting staff for their cooperation in preparation of the Annual Report. I appreciate the sincere efforts of Dr.B.Srinivasulu, Controller of Examinations, Dr.K.Purushotham, Director of Research, Dr. P. Suryanarayana Reddy, Registrar and the supporting staff for their sincere support in preparation of the report.


(S.D.SHIKHAMANY)

Contents

S.No.	Particulars	Page No.
	Summary	1
I.	Introduction	3
II.	University Administration	4
	A. Authorities of the University	4
	1. Board of Management	4
	2. Officers of the University	7
	3. Academic Council	7
	B. Meetings of the Authorities of the University	9
	1. Board of Management	9
	2. Academic Council	9
	3. Research and Extension council (REC)	9
	C. Faculty Strength	9
III.	Education	10
	1. Teaching Institutes	10
	2. Admission Strength and out turn of Students	10
	3. Scholarships and Stipends	11
	4. Students' Hostels	11
	5. Students Activities	12
	i) NSS Activities	12
IV.	Research	15
	1. Thrust areas of Research	15
	2. Research Stations	15
	3. Seasonal conditions and crop performance	16
	4. Salient Research Results during 2009-10	16
	A. Crop Improvement	17
	B. Crop Production	35
	C. Entomology	43
	D. Plant Pathology	47
	E. Post-harvest Technology, Plant Physiology, Soil Science, Agronomy	55

Contents

V. Extension	57
A. APHU First ZREAC Meetings	57
B. Diagnostic visits	57
C. Training programmes conducted	62
D. Training programmes participated	65
E. Method demonstrations	68
F. Group discussions	68
G. Field days	69
H. Mass communication	70
a) Radio programmes	70
b) Television programmes	73
I. Rythu Sadassus	77
J. Kisan Melas	79
K. Rythu Chaitanya Yatras	79
L. Village adoption programme	81
VI. Publications	82
VII. Finance and Budget	92
VIII. Awards & Honours	93
IX. Other Significant events if any	94



SUMMARY

The Andhra Pradesh Horticultural University (APHU) was established by the Government of Andhra Pradesh with its headquarters at Venkataramannagudem, near Tadepalligudem in West Godavari District, Andhra Pradesh. It is the second Horticultural University in the country, started functioning with effect from 26th June, 2007. The university runs on Land Grant Pattern followed in the USA, with emphasis on Education, Research and Extension of Horticulture and allied subjects.

The University is governed by a Board of Management comprising of 21 members headed by the Vice-Chancellor. The Vice-Chancellor is supported by University Officers viz., Registrar, Dean of Horticulture, Director of Research, Director of Extension, Dean of PG Studies, Dean of Student Affairs, Controller of Examinations, Comptroller and Estate Officer in University management. The academic affairs of the University are governed by the Academic Council, UG and PG board lead by the Vice-Chancellor, the Research and Extension services are guided by Research and Extension Council (REC).

EDUCATION

This university offers B.Sc. (Hons.) Horticulture in four constituent colleges namely College of Horticulture, Anantharajupet (Kadapa District), Mojerla (Mahaboobnagar District), Rajendranagar (Ranga Reddy District) and Venkataramannagudem (West Godavari District), M.Sc. (Horticulture) with specialization in Fruit Science, Vegetable Science, Floriculture and Landscape Architecture and Spices, Plantation, Medicinal and Aromatic Crops and Ph.D (Horticulture) at College of Horticulture, Rajendranagar and Venkataramannagudem. The university has established five Horticultural Polytechnics in rural areas to offer two year Diploma in Horticulture. The Horticultural Polytechnics are at Dasnapur (Adilabad district), Madakasira (Ananthapur district), Ramachandrapuram (East Godavari district), Ramagirikhilla (Karimnagar district) and Kalikiri (Chittoor district).

During the year 2009-10, nine meetings of Board of Management, three Academic Council meetings and one REC meeting were held. Students on roll are 261, 51, 4 and 133 in B.Sc. (Hons.) Horticulture, M.Sc. (Horticulture), Ph.D (Horticulture) and Diploma in Horticulture respectively. NSS activities at College of Horticulture, Venkataramannagudem, Anantharajupet, Rajendranagar were conducted.

RESEARCH

Crop improvement

In Coriander, APHU Dhania-1 and Fenugreek, APHU Menthi-1 are released. LCA 436 (Paprika), LCA 625 (Hot pepper) and LTa 26 (Ajowan) are under minikit testing.

In mango hybrids, Neelum X Panchadarakalasa found to be superior in terms of number of fruits / tree and yield / tree. Khader X Jehangir with attractive color and high yield potential and also found to be promising.

Alphonso fruits obtained from Vizianagaram and Rampachodavaram mandal of East Godavari Districts were comparable in size, shape and colour of fruit as well as pulp to Ratnagiri Alphonso. The incidence of spongy tissue was only one in 30 (3.3%) that too in over ripened fruits. This shows the





potential of growing Alphonso mango for export in the district of Srikakulam, Vizianagaram and Visakhapatnam districts of Andhra Pradesh.

In Sapota, Kalipatti recorded the highest mean yield. In grapes, yield was maximum in Rizamat followed by Muscat of Hamberg. In Bhendi the genotype RNOYR-1 recorded lowest YVMV incidence. In Brinjal, "Improved Bhagyamati" with green calyx was found superior to Bhagyamati with respect to yield and consumer acceptance.

Crop production

In mango under high density planting, pruning up to 2nd node from terminal of the shoot and spraying $ZNSO_4$ @0.5% + urea @ 2% recorded highest number of buds sprouted per shoot and number of fruits per panicle. In Gladiolus, earliest flowering was observed in Vermicompost (300 g/m²) + Azospirillum (2g/pl) + PSB (2g/pl) applied treatments. Broccoli grown under 35% shade recorded, curd higher yield compared to 15% and 75% shade. Red cabbage grown under 35% shade produced maximum head weight, diameter of head and highest yield compared to open field condition.

Crop protection

Entomology

Tiamethoxam @0.005% was found effective against thrips and hoppers in mango. Spirotetramat @0.05 ml/ ltr was very effective against grape mealy bug, *Maconellicoccus hirsutus*. Fipronil @2ml was found highly effective against Blossom midge in chillies. Triazophos 0.05% followed by Profenophos 0.1% were found significantly superior over control in reducing rust mite damage in Sweet orange.

Plant Pathology

Disease forecasting and prediction model for Anthracnose disease in Mango is developed. Fenamidone 10% + Mancozeb 50% was very effective against downy mildew disease in Grape. Three sprays of Propiconazole 0.1% found effective against Sigatoka disease in Banana. August month sown papaya recorded lowest viral disease incidence compared to rest of the months. Developed IDM module against TOSPO virus disease of Tomato. Identification and characterization of CTV, CYMV and HLB isolates in Acid lime by DAC ELISA was carried out.

Post-Harvest Technology

Wet storage of cut spikes of Gladiolus upto three days showed better performance, beyond that the vase life and other floral characters declined. The wet storage of Chrysanthemum stems resulted in increased vase life and flower diameter. The vase life and floret diameter of cut tuberose stems found to be increased by keeping in sucrose 5% + $Al_2(SO_4)_3$ 16H₂O 300 ppm.

EXTENSION

Scientists of APHU are participated in diagnostics surveys, Rythu Chaitanya yatras, disaster management programmes, training programmes to farmers and officers of the Department of Horticulture and Agriculture, conducting field days, transfer of technology through mass media, publications, field demonstrations and village adoption programmes etc. Regular ZREAC programmes conducted in all the three zones including departmental officers and local farmers.





I. INTRODUCTION

The Andhra Pradesh Horticultural University was established by the Government of Andhra Pradesh by Act 30 of 2007 with its headquarters at Venkataramannagudem, near Tadepalligudem in West Godavari District. It is the second Horticultural University in the country. The University runs on the Land Grant pattern followed in the USA, with emphasis on Education, Research and Extension of Horticulture and allied subjects.

The University at present has four horticultural colleges, five polytechnics, 27 Research Stations and three KVKs across agro-climatic zones of the state. Ongoing research programmes at 27 Research Stations have been reoriented into eight thrust areas identified based on the present day need. Nineteen All India Coordinated Research projects are also operating at different research stations of the university. Funds for research are provided by the State Government and also the Indian Council of Agricultural Research (ICAR). The ICAR provides 75 per cent of funds for conducting research under various All India Coordinated Research Projects of ICAR.

The University is governed by a Board of Management comprising of 21 members headed by the Vice-Chancellor. The Vice-Chancellor is supported by University Officers viz., Registrar, Dean of Horticulture, Director of Research, Director of Extension, Dean of PG Studies, Dean of Student Affairs, Controller of Examinations, Comptroller and Estate Officer in University management. The academic affairs of the University are governed by the Academic Council, UG and PG Boards led by the Vice-Chancellor. The Research and Extension services are guided by the Research and Extension Council (REC).

This university offers B.Sc. (Hons.) Horticulture, M.Sc. (Horticulture) with specialization in i) Fruit Science ii) Vegetable Science iii) Floriculture and Landscape Architecture, and iv) Spices, Plantation, Medicinal and Aromatic crops and Ph.D (Horticulture). The course curriculum prescribed by the IV Deans' committee of Indian Council of Agricultural Research is being followed for the degree programme. Students besides course work, they shall also undergo Rural Horticultural Work Experience Programme (RHWEPP) and 'Hands on Training / Experiential learning of 14 weeks each on specialized subjects, namely, (1) protected cultivation of high value crops (2) post-harvest technology and value addition (3) nursery production and management (4) floriculture and landscape gardening, dealing with commercialization of horticulture in addition to rural training for the award of Bachelor's degree. In RHWEPP the final year students are deputed to stay in villages along with farmers for full one year, where they will interact with farmers of the village, work with them, understand their problem, apply the latest knowledge, acquire necessary skills and gain self confidence. These rural based training programmes i.e., RHWEPP, Hands on Training/ Experiential Learning will be useful to develop the manpower requirement with different technical expertise in view of the globalization of Horticultural trade and for imparting quality education and training in horticulture to the students to develop into well trained personnel, a part of rural development programme. With an intention to provide self employment to rural youth, and also to make use the services of rural youth in rural development, the University has established five Horticultural Polytechnics in rural areas to offer two year Diploma in Horticulture.

The University scientists are involved in popularizing the proven technologies and improved varieties developed through various extension activities, namely; All India Radio, print and visual media, participation in Exhibitions, Krishi Melas, Rythu Chaitanya Yatra, Rythu Sadassulu and Adarsha Rythu Training Programmes.





II. UNIVERSITY ADMINISTRATION

His Excellency, the Governor of Andhra Pradesh, **Sri E.S.Lakshmi Narasimhan** is the Chancellor of the University.

Dr. S.D.Shikhamany, the first Vice-Chancellor is the Academic Head and Principal Executive Officer of the University.

The organizational set up of the University is presented in flow chart 1.

The University is governed by the following authorities.

- Board of Management
- Academic Council

A. AUTHORITIES OF THE UNIVERSITY

1. Board of Management

The Board of Management of APHU is the apex body, empowered to make policy decisions, with the Vice-chancellor as its Chairman who is also the Chief Executive of the University.

The Board of Management has representatives from State Legislature/Parliament (4), the Horti-industry (2) and State Chamber of Panchayat Raj (1) as well as Horticultural Scientific Community (1). In addition, one representative from the Indian Council of Agricultural Research, three Members of Academic Council of the University, Secretaries to Government from Panchayat Raj and Finance Departments and Director of State Departments of Agriculture and Animal Husbandry are also the Members of the Board of Management of APHU.

Members of Board of Management, APHU

Chairman	Dr. S.D. Shikhamany Vice-Chancellor, APHU
Official Members	Dr.P. Raghava Reddy Vice-Chancellor, ANGRAU Dr. D.V.G.Krishna Mohan , Vice-Chancellor, SVVU Dr. A.K.Goel , I.A.S. Agril. Production Commissioner & Principal Secretary to Government, ATM Mrs. Vasudha Mishra , I.A.S. Secretary to Government (IF) Mrs. G.Jayalakshmi , I.A.S. Commissioner & Director of Horticulture Dr. S.Amarender Reddy , Professor (Hort.) Dr. K. Purushotham , Director of Research Dr. D.V. Raghava Rao , Dean of Horticulture





Non-Official Members

Sri V.Jayarami Reddy, Assistant Professor of Horticulture (Retd.), Distinguished Horticultural Scientist

Sri Merla Veeraiah Chowdary, Progressive Farmer of Horticulture

Sri H. Venugopal, Progressive Farmer of Horticulture

Smt. M. Sreevani, Progressive Farmer of Horticulture

Dr. Y. Narayana Reddy, Professor (Horticulture) & Head (Retd.)

Sri J. Devi Prasad, Horticulture Industrialist /Other Entrepreneurs.

**Members of Parliament/
Legislature**

Sri S.P.Y.Reddy, Member of Parliament

Sri Rao Sujaya Krishna Ranga Rao, Member of State Legislature, Bobbili.

Sri Challa Amarnatha Reddy, Member from State Chamber of Panchayat Raj.

**ICAR Representative
Member – Secretary**

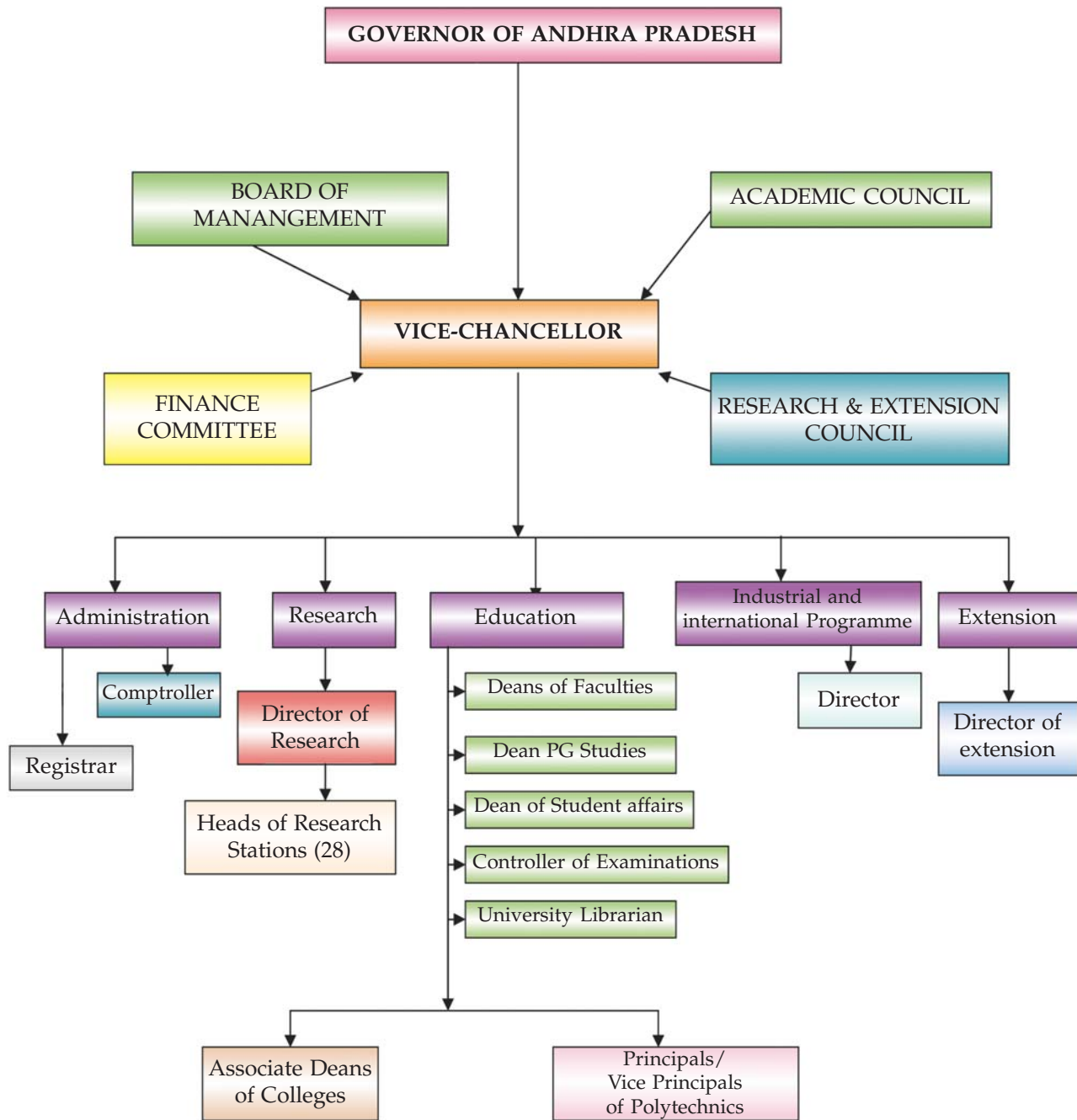
Dr. B. Venkateswarlu, Director, CRIDA

Dr. P. Suryanarayana Reddy 4.9.2008 to till Date.





ORGANIZATIONAL STRUCTURE OF ANDHRA PRADESH HORTICULTURAL UNIVERSITY





2. Officers of the University

The list of University Officers for the year is given below

University Officers

Vice-Chancellor	Dr. S.D.Shikhamany (26.02.2008 onwards)
Registrar	Dr. P.Suryanarayana Reddy (04.09.2008 onwards)
Comptroller i/c.	Dr. P.Suryanarayana Reddy (03.10.2008 onwards)
Dean of Horticulture	Dr. D.V.Raghava Rao (17.05.2008 onwards)
Dean of Postgraduate Studies i/c.	Dr. D.V.Raghava Rao (17.05.2008 onwards)
Director of Research	Dr. K.Purushotham (09.05.2008 onwards)
Director of Extension i/c	Dr. K.Purushotham (09.05.2008 to 04.03.2010)
Director of Extension	Dr. K.V.Seshadri (05.03.2010 onwards)
Dean of Student Affairs	Dr. K.Hari Babu (06.03.2009 onwards)
Controller of Examinations	Dr. B.Srinivasulu (12.03.2009 onwards)
Estate Officer i/c	Sri M.Srimannarayana (01.09.2007 to 04.03.2010)
Estate Officer	Sri P.R.P.Raju (05.03.2010 onwards)

3. Academic Council

The Academic Council is vested with the responsibility of implementing and monitoring all the academic programmes. The Council is headed by the Vice-Chancellor, as Chairperson and consists of Deans of Faculties, Directors of Research and Extension, Controller of Examinations, Dean of Student Affairs, University Heads of Departments and Professors as Members. In addition, the Council consists of ten academicians, representing different faculties nominated by the Vice-Chancellor and two representatives of the Board of Management. As Chief Executive of the University the Vice-Chancellor is vested with the powers and responsibilities for the academic administration.

Members of Academic Council

Chairman	Dr. S.D.Shikhamany Vice-Chancellor, APHU
Ex-Officio Member Secretary	Dr. P.Suryanarayana Reddy , Registrar
Members	Dr. P.Raghava Reddy , Vice-Chancellor, A.N.G.R.A.U Dr. D.V.G.Krishna Mohan , Vice-Chancellor Sri Venkateswara Veterinary University Dr. V.Jayaramireddy Hon'ble Member, Board of Management Sri H.Venugopal Hon'ble Member, Board of Management





Dr. Y. Narayana Reddy

Hon'ble Member, Board of Management

Dr. D.V.Raghava Rao

Dean of Horticulture, APHU

Dr. K.Purushotham

Director of Research, APHU

Dr. K.V.Seshadri, Director of Extension, APHU

Dr. K.Haribabu Dean of Students Affairs, APHU

Dr. B.Srinivasulu, Controller of Examinations, APHU

Dr. S.Amarender Reddy, Associate Dean

Dr. Syed Ismail, Associate Dean

Dr. G. Subbi Reddy, Associate Dean

Dr. M.Pratap, Professor

Dr. P.Veerannagoud, Professor

Dr. A.S.Padmavathamma

Principal Scientist, AICRP on Floriculture

Dr. G.Satyanarayana, Principal Scientist (Retd.,)

Dr. Kochu Babu, Director, NRC Oilpalm, Pedavegi

Dr. (Smt.) M.Madhavi, Associate Professor

Dr. M.Padma, Associate Professor

Dr. Tagore Naik, Assistant Professor

Sri. K.M.Yuvaraja, Assistant Professor

Dr.B.Gautam, Vice-Principal, SKPP Horticultural Polytechnic, Ramachandrapuram

Dr.K. Chandrasekhar Reddy, Vice-Principal, Horticultural Polytechnic, Ramagirikhilla

Dr. M. Ramakrishna, Vice-Principal, Horticultural Polytechnic, Madakasira

Dr. M.Siva Prasad, Vice-Principal i/c, Horticultural Polytechnic, Adilabad





B. MEETINGS OF THE AUTHORITIES OF THE UNIVERSITY

1. Board of Management

The APHU Board of Management met nine times during the year. The dates of the meetings are given below.

S. No.	Board Meeting No.	Date of the Meeting
1.	13 th Board Meeting	02-05-2009 (Saturday)
2.	14 th Board Meeting	15-06-2009 (Monday)
3.	15 th Board Meeting	22-07-2009 (Wednesday)
4.	16 th Board Meeting	31-08-2009 (Monday)
5.	17 th Board Meeting	29-09-2008 (Tuesday)
6.	18 th Board Meeting	24-10-2009 (Saturday)
7.	19 th Board Meeting	25-11-2009 (Wednesday)
8.	20 th Board Meeting	15-02-2010 (Monday)
9.	21 st Board Meeting	19-03-2010 (Friday)

2. Academic Council

The Academic Council normally meets once in six months. Third, Fourth and Fifth academic council meetings were held on 12.01.2009, 25.05.2009 and 10.02.2010 at Teachers Home, Bhoiguda, Secunderabad.

3. Research and Extension Council (REC)

The 2nd REC Meeting was held on 10th December, 2009 at Teachers Home, Bhoiguda, Secunderabad.

C. FACULTY STRENGTH

The cadre-wise strength of teaching staff of APHU is as follows

Faculty Strength in APHU during 2009-10

Teaching Staff		Non-teaching staff	
Post	No.	Post	No.
Professors	11	Executive Engineer (Civil)	1
Associate Professors	27	Assistant Engineer	2
Assistant Professors	144	Deputy Comptroller	1
		Assistant Comptroller	2
		Assistant Registrar	2
		Superintendents	11
		Senior Assistants	11



III. EDUCATION

1. Teaching Institutes

Andhra Pradesh Horticultural University (APHU) offers under graduate programme, B.Sc. (Hons.) Horticulture, M.Sc. (Horticulture) with specialization in Fruit Science, Vegetable Science, Floriculture & Landscape Architecture and Spices, Plantation, Medicinal & Aromatic crops and Ph.D (Horticulture). In addition to these, APHU also offering two years Post-matric-diploma programme.

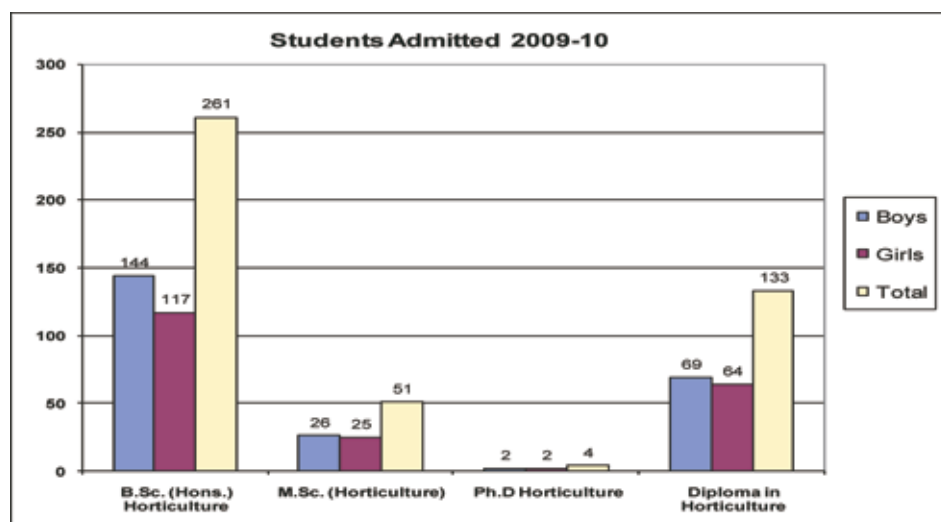
The list of colleges and polytechnics with their location, year of establishment and courses offered is given in Table.

S.No.	Teaching Institute with location	Courses offered
I.	Colleges of Horticulture	
	i) College of Horticulture, Anantharajupet	B.Sc. (Hons.) Horticulture
	ii) College of Horticulture, Mojerla	B.Sc. (Hons.) Horticulture
	iii) College of Horticulture, Rajendranagar	B.Sc. (Hons.) Horticulture M.Sc. (Horticulture) with specialization in Fruit Science, Vegetable Science, Floriculture and Landscape Architecture and Spices, Plantation, Medicinal and Aromatic crops and Ph.D (Horticulture)
	iv) College of Horticulture, Venkataramannagudem	B.Sc. (Hons.) Horticulture, M.Sc. (Horticulture) with specialization in Fruit Science, Vegetable Science, Floriculture and Landscaping Architecture and Spices, Plantation, Medicinal and Aromatic crops
II.	Horticultural Polytechnics	
	i) Horticultural Polytechnic, Adilabad ii) Horticultural Polytechnic, Kalikiri iii) SSPG Horticultural Polytechnic, Madakasira iv) Horticultural Polytechnic, Ramagirikhila v) SKPP Horticultural Polytechnic, Ramachandrapuram	Diploma in Horticulture

2. Admission Strength and Out turn of Students

Course	Students admitted (2009-10)		
	Boys	Girls	Total
B.Sc. (Hons.) Horticulture	144	117	261
M.Sc. (Horticulture)	26	25	51
Ph.D Horticulture-	2	2	4
Diploma in Horticulture	69	64	133
Total	241	208	449





3. Scholarships and Stipends

Name of the Scholarship	No. of recipients	Amount received (Rs.)
BC Post Matric Scholarship	91	6,71,465
SC Post Matric Scholarship	36	3,18,304
ST Post Matric Scholarship	22	3,26,565
EBC Post Matric Scholarship	25	1,06,097
EPC Post Matric Scholarship		
Disabled	1	5,786
District Minority Department Scholarship	1	3,000

4. Students' Hostels

No. of Hostels			No. of students accommodated		
Boys	Girls	Total	Boys	Girls	Total
3	3	6	141	71	212



5. Students Activities

i) NSS Activities

NSS Activities at College of Horticulture, Venkataramannagudem

On the eve of Republic day (26th Jan 2010) Dr.S.D.Shikhamany, Hon'ble Vice-Chancellor, APHU, has distributed the certificates in token appreciation to NSS Students.



NSS Activities at College of Horticulture, Anantharajupet

The NSS Day meeting was organized at College of Horticulture, Anantharajupet on 24th September, 2010. The NSS units of student volunteers (2 units) of College of Horticulture, Anantharajupet and the Teaching and Non-Teaching staff of College have attended the meeting.





College of Horticulture, Rajendranagar

NSS Day

All the staff and students of College of Horticulture, Rajendranagar celebrated NSS day on 24-09-2010. Dr. D.V. Raghava Rao, Dean of Horticulture and Dr.S. Amarender Reddy, Director of Extension has attended the programme.

NSS Special Camp at Hameedullah Nagar, Shamshabad Mandal, Ranga Reddy District by College of Horticulture, Rajendranagar



National Education Day celebrated

National Education Day was celebrated at all Colleges of Horticulture and Horticultural Polytechnics of APHU on 11th November, 2009 commemorating the birth day of Moulana Abdul Kalam Azad.

Dr. S.D.Shikhamany, Vice-Chancellor, APHU inaugurated an additional classroom, examination hall and a computer lab on 23rd September, 2009 at College of Horticulture, Venkataramannagudem.



APHU IN FLOOD RELIEF

Teaching and Non-teaching staff of APHU has contributed one day salary to the “Chief Minister’s Flood Relief Fund”. Students and staff of College of Horticulture, Rajendranagar and Venkataramannagudem have contributed an amount of Rs.25,000/- and Rs.68,120/- respectively to the “Chief Minister’s Flood Relief Fund”.

NSS unit of College of Horticulture, Rajendranagar participated in “**Flood Relief Work**” in Flood effected villages of Mahaboobnagar district on 10th October, 2009.



Horticulture Seva Hruday

Horticulture Seva Hruday, a voluntary organization initiated by 2nd year B.Sc. (Hons.) Horticulture students of College of Horticulture, Venkataramannagudem was inaugurated by Dr.D.V.Raghavarao, Dean of Horticulture in the presence of Dr.K.Hari babu, Dean of Student Affairs, Dr.K.V.Seshadri Associate Dean and students College of Horticulture, Venkataramanna gudem on 26th January 2010.





IV. RESEARCH

The university is conducting basic, applied, location /region specific and anticipatory research for the overall development of horticultural crops in the state at 27 Research Stations located in 9 agro-climatic regions of the state. The research programmes are covered under three categories namely, Non plan projects/ University projects, ICAR plan projects under All India Coordinated Research Projects and State Horticulture Mission projects.

The research activities of the university are being carried out in the following thrust areas.

1. Thrust areas of research

- Increasing productivity
- Sustaining productivity under biotic and abiotic stress
- Improving nutritive value
- Environment protection
- Increasing profitability to the farmers
- Export promotion
- Minimization of post harvest losses
- Processing and value addition

2. Research Stations

1. Horticultural Research Station, Mallepally, Nalgonda District
2. Citrus Research Station, Petlur, Nellore District.
3. Citrus Research Station, Tirupati, Chittoor District.
4. Floriculture Research Station, Rajendranagar, Ranga Reddy District
5. Grape Research Station, Rajendranagar, Ranga Reddy District.
6. Herbal Garden Scheme, Rajendranagar, Ranga Reddy District.
7. Horticultural Research Station, Adilabad, Adilabad District.
8. Horticultural Research Station, Ambajipeta, East Godavari District.
9. Horticultural Research Station, Anantapur, Anantapur District.
10. Horticultural Research Station, Anantharajupet, Kadapa District.
11. Horticultural Research Station, Aswaraopet, Khammam District.
12. Horticultural Research Station, Bapatla, Guntur District.
13. Horticultural Research Station, Chintapalle, Vishakapatnam District.
14. Horticultural Research Station, Darsi, Prakasam District.
15. Horticultural Research Station, Lam, Guntur District.
16. Horticultural Research Station, Kovvur, West Godavari District.
17. Horticultural Research Station, Mahanandi, Kurnool District
18. Horticultural Research Station, Pandirimamidi, East Godavari District.
19. Horticultural Research Station, Peddapuram, East Godavari District.
20. Horticultural Research Station, Rajendranagar, Rangareddy District.
21. Fruit Research Station, Sangareddy, Medak District.
22. Horticultural Research Station, Seetampeta, Srikakulam District.
23. Horticultural Research Station, Venkataramannagudem, West Godavari District



24. Horticultural Research Station, Vijayarai, West Godavari District.
25. JVR Horticultural Research Station, Malyal, Warangal District.
26. Mango Research Station, Nuzvid, Krishna District.
27. Turmeric Research Station, Kammarpally, Nizamabad District.

3. Seasonal conditions and crop performance

Seasonal conditions prevailed in the state during the year 2009-10 on the whole was satisfactory. The state received an average total rainfall of 760 mm as against normal rainfall of 940 mm, the deficit being 19 per cent. During the south west monsoon the state received an average rainfall of 454 mm as against the normal rainfall of 624 mm, the surplus being 27 per cent. During north east monsoon period an average rainfall of 185 mm was received as against the normal rainfall of 224 mm, the deficit being 17 per cent.

Hot weather period of 106 days prevailed during the period as against normal hot weather period of 78 days.

The areas, production and productivity of horticultural crops in Andhra Pradesh during 2009-10 are presented.

Statistics of Horticultural crops in Andhra Pradesh during 2009-10

Sl. No	Crop Category	Area (000'HA)	Production (000'MT)
1	Fruit Crops	935	11407
2	Vegetables Crops	324	5267
3	Plantation Crops	297	882
4	Spice Crops	318	1225
5	Flower Crops	19	125
	Total	1893	18906

4. Salient Research Results During 2009-10

New Crop varieties released during 2009-10

Crop	Variety released	Research Station
Coriander	APHU Dhania-1	HRS, Lam, Guntur
Fenugreek	APHU Menthi-1	HRS, Lam, Guntur
Chillies	LCA-625	HRS, Lam, Guntur

Particulars of crop cultures under Minikits of testing

Name of Culture	Year of Minikit testing	Important features
LCA-436 Paprika	Three years of minikit testing Completed and state release proposals will be submitted	<ul style="list-style-type: none"> ● High colour value, ● Less pungent (paprika type). ● Fruits are medium long and stout ● Good export value, ● 40 q/ha
LCA-625 Hot Pepper	First year	<ul style="list-style-type: none"> ● Early variety, ● Excellent plant type ● Immature fruit colour dark green ● 9-11 cm fruit length, ● Highly pungent and good colour retention, ● 62-68 q/ha dry yield potential
LCA-26 (Ajowan)	First year	<ul style="list-style-type: none"> ● 150-160 days duration, ● 800-1100 kg/yield ● E20-30% yeild advantage over the check LS



A. CROP IMPROVEMENT

FRUITS

MANGO

At HRS, Anantharajupet, among eight pre-released hybrids evaluated, Neelum X Panchadarakalasa expressed its superiority over others both in terms of number of fruits per tree (1510.41) and yield per tree (397.24 kg). High TSS of 24.2° brix was recorded in Alampur Baneshan X Mulgoa followed by Ambalavi X Alampur Baneshan and Khader X Jehangir (21.0° brix).



Neelum x Panchadarakalasa



Khader x Jehangir

Evaluation on performance of twelve mango varieties, revealed that Vikarabad recorded highest yield per tree (472.44 kg) followed by Safeda (247.12 kg). The TSS was recorded highest in Mahamooda Vikarabad (26.6° brix) followed by Manoranjan (23.1° brix) and Kesar (21.7° brix). Among hybrids, Manjeera recorded highest yield (709.50 kg per tree) followed by Mallika (379.44 kg per tree). The TSS was high in Mallika (23.0° brix).

Among Baneshan clones evaluated, Veeraballi Selection-2 was highly vigorous in terms of plant height (4.53m), stem girth (0.65m) and canopy spread (EW - 5.73m and NS - 5.06m). However, number of fruits per plant was more in Veeraballi Selection-1 (19.33) followed by Veeraballi Selection-2 (14.33) in first year bearing. In Banglora clones, Banglora Selection-2 was superior in terms of growth characters and number of fruits per tree (70.0).

At HRS, Pandirimamidi, Alphonso fruits collected from Krishna, Vizianagaram and East Godavari recorded turmeric yellow with good percent of red blush. Ethylene treated (500ppm) fruits showed much percent of red blush than others. One score of spongy tissue was observed in control than treated fruits. The average fruit weight 225.5 g TSS 20.2 Brix, and acidity 5.58 were recorded in 500 ppm ethylene treated fruits than others.

At VRS, Rajendranagar, 90 genotypes of mango inclusive of juicy (48), table (22), pickle (7) and dual (13) types were collected, characterized and evaluated based on morpho-physiological,



organoleptic and molecular characters. The 90 genotypes were categorized into four clusters showing 59% dissimilarity at genetic level. Forty accessions of Beneshan were grouped into nine clusters suggesting a wide range of genetic dissimilarity 10 - 42%. From the dendrograms of the accessions of Baneshan, Peddarasam, Chinnarasam, Cherukuram and Panchadarakalasa, it is evident that there was varying degree of genetic dissimilarity (10- 49%, 49%, 29%, 20% and 7% respectively) indicating that the different orchards of the respective popular cultivars in different geographical regions of Andhra Pradesh were of genetically distinct genotypes and hence can be treated as ecotypes or variants. Out of the 100 SSRs screened for mango genotyping, 50% were found to be polymorphic. Among them, SSR-15,19,84,85 and MNGSSR-14 were found to be the best markers in the evaluation of mango genotypes.



‘Banganapalle Mango’, the King of Mangoes deserves Registration as a Geographical Indication

Specific genotype molecular signatures were assigned. Survey of mango orchards resulted in the identification of one Coloured Desi mango genotype (DM ACC-17) which may be exploited for commercial cultivation after evaluation at the experimental stations.

At HRS, Aswaraopet, among 10 Hybrids tested, Neeleshan recorded the highest mean number of fruits (1034) and mean yield (141.3 kg.) per tree over all other hybrids. Among 10 Table varieties tested, Totapuri recorded the highest number of fruits (182) and mean yield (33 kg) per tree compared to rest of the varieties. Among 7 Juicy varieties tested, Suvarna Rekha recorded the highest mean number of fruits per tree (530) and variety Navaneetham recorded the highest mean yield (75 kg) per tree. Among 2 pickle varieties tested, Tellagulabi gave higher mean number of fruits (200) and mean yield (100 kg) per tree.

ACID LIME

At CRS, Tirupati, among the 22 Acid lime clones evaluated, maximum number of fruits and weight of fruits per plant was observed in TAL-94/14 (3170 and 133.77 kgs) followed by TAL-94/13 (2560 and 112.0 kgs). More T.S.S. (9.75⁻² Brix) was recorded in TAL 95/1. Maximum plant height and volume was more in Acid lime local (3.93 m and 61.78 cu.m.) followed by TAL 94-9 (3.72 m and 56.64 cu.m.). Though the yield component was comparatively less in TAL-94/13 than TAL-94/14 the fruit shape and colour is better for fetching higher prices.





SWEET ORANGE

At CRS, Tirupati, 90 accessions Sweet orange-34, Acid lime-26, mandarins-6, Rangpur lime-6, Jambheri-10, Pummelo-3, Miscellaneous-05) were collected from Florida, Texas states of U.S.A. Japan and different parts of India are planted to evaluate for tolerance to biotic and abiotic stresses, pests and disease resistance, superior yield and fruit quality parameters over the existing cultivars. Out of them Rangpur lime strain Texas, Citrus hystrix and Australian sour orange were identified as resistant to diseases. Australian sour orange was identified as high juice yielder (65-70%).

Among the nine clones of 17 year old sweet orange, the highest yield was recorded in Sathgudi (CIP) clone (1261 fruits weighing 170.25 kgs per plant) followed by Ananthapur selection (1005 fruits weighing 147.80 kgs per plant) and Ankamma gudur with 815 fruits weighing 108.8 kgs per plant. Brix acid ratio is also more in Sathgudi (CIP+ (11.37).

SAPOTA

At HRS, Aswaraopet among Eleven cultivars tested, Kalipatti recorded the highest mean number of fruits per tree (585) and the highest mean yield was recorded by Cricket ball (81.3 kg) per tree.

GLIMPSES OF RESEARCH ACTIVITIES AT HRS, ASWARAOPET



Capsicum grown under shade net (RKVY)



Trial on High density planting in Mango



Trial on High density planting in Guava



Multistoried cropping in coconut



GRAPES

At GRS, Rajendranagar, the maximum yield was more in Rizamat (11.13 kg/vine) followed by Muscat of Hamberg (8.93 kg/vine). Pusa Navarang has recorded maximum yield (13.23 kg/vine). Among the seeded table varieties, Dilkush has recorded highest yield of 16.27 Kg/vine with 19.3^o brix.

Among seedless table varieties A 18-3 has recorded highest yield of 14.77 Kg/vine with 20^o brix. Among raisin varieties, Sonaka has recorded maximum yield of 9.99 Kg/vine with 20^o brix. Among juicy varieties, E 12-2 has recorded highest yield of 21.15 Kg/vine with 22.7^o brix. Among wine varieties, Shiraz has recorded highest yield of 42.04 Kg/vine with 19^o brix

JACK FRUIT

At HRS, Anantharajupet among 10 Jack collections evaluated, number of fruits per plant was maximum in Gunnegora (36.5) closely followed by Bagepalli (35.6). Fruit Weight was recorded maximum in KO Selection (11.68 kg) followed by Hassan white (8.90 kg). The TSS was high in KRS (22.0^o brix) followed by K.O. Selection (21.5^o brix). The number of flakes per fruit was more in Hassan white (205.0) followed by Bagepalli (163.0).



BANANA

At HRS, Anantharajupet under initial evaluation trial, maximum yield per hectare was recorded in MS 93- 01 (43.99 t/ha) and Grand Naine (43.02 t/ha) whereas, highest benefit – cost ratio was recorded in Grand Naine (2.19) followed by MS 93-01 (1.99).

At HRS, Kovvur characterization for 102 accessions as per descriptor developed by IPGRI – INIBAP/CIRAD for banana in plant and ratoon crops was completed. One hundred and three (103) accessions were deposited at NRC for Banana (NGIS). Out of which Fifty (50) accessions were allotted the IC/EC numbers and fifty one (51) accessions are still awaited for the allotment of IC/EC numbers.

Dwarf Cavendish clone (KBS-8) continue to record an average bunch weight of 50.0 kg with a yield potential of over 115 t/ha.

A clone in Kovvur Bontha (ABB) is identified with 10 hands, 131 fingers and weighing 35.0 kg.

Among the four accessions, Kovvur Bontha (ABB) cooking type was found to be highly susceptible to Rhizome rot disease. Among cooking types, FHIA 03 has recorded highest average yield (57.66 t/ha) and among dessert types Robusta has recorded highest yield (46.82 t/ha). Among all varieties, Gandevi has recorded highest yield of 55.89 t/ha.





OIL PALM

At HRS, Vijayrai, 'Varietal studies in oil palm' has revealed significantly maximum number of bunches/palm (4.21) was found in the cross combination 115Dx291P followed by 109Dx291P (4.09) with no significant differences between the two treatments. The bunch weight was found non-significant among the cross combinations. Significantly highest FFB yield/palm was obtained in the cross combination 109Dx291P (85.41 kg/palm/year or 12.21 t/ha and significantly lowest yield was recorded in the cross combination 18Dx32P (28.59 kg/palm /year or 4.09 t/ha). The FFB yield per hectare in all the cross combinations was significantly very low when compared with the actual yield due to unfavourable weather conditions prevailing during the year i.e. very low annual rain fall of 546 mm only.

Studies on the performance of exotic and indigenous Tenera hybrids of oil palm' has revealed that the maximum number of bunches per palm was recorded with Palode Tenera Hybrid (2.50). The maximum bunch weight was recorded in IRHO Tenera Hybrid (21.9 kg) and lowest was recorded in Papua New Guinea Tenera Hybrid (19.79 kg). Maximum yield was recorded with Palode Tenera Hybrid (7.72 t/ha). The reason for the lowest yield was due to unfavourable weather conditions prevailed during the year under report. Harsh climate has led to production of male bunches rather than female inflorescences.

Evaluation of new cross combinations in Oil Palm' has revealed that the maximum plant height was recorded in NRC OP- 4 with 3.43m and the shortest plant height was recorded in NRC OP- 10 with 2.43m. The maximum number of leaves was recorded in NRC OP- 1 with 26.00 and the lowest number of leaves was recorded in NRC OP- 2 with 20.10. The plant girth was recorded maximum in NRC OP- 7 with 1.55m followed by NRC OP- 4 with 1.52m. The lowest girth was recorded in NRC OP-3 with 1.18 m.

VEGETABLES

OKRA

At VRS, Rajendranagar, screening of Okra germplasm under natural field conditions, REVEALED that the genotype RNOYR-1 recorded lowest YVMV incidence on plants at final harvest (8.33%)

In Okra hybrid AVT-II at VRS, Rajendranagar. Hybrid Prerna recorded maximum average fruit weight (17.6 gm) and highest yield was recorded by hybrid AROH-465 (97.0 q/ha) among the 9 entries and 3 checks tested.

Development of pure line variety in okra

Out of ten strains evaluated in OYT, RNO-158 a high yielding strain with good fruit quality was identified, can be used as a female parent in interspecific hybridization with *Abelmoschus manihot* as male parent.





In IET at HRS, Lam, 7 Bhendi hybrids were evaluated against 3 Resistant Checks (HOK-152, Arka Anamika and Parbhani Kranthi) and 1 Susceptible check (Pusa Sawani). Among the hybrids, the highest yield was recorded by OKHYB-10 (130.28 q/ha) which was on par with OKHYB-3 (128.36 q/ha) and were significantly superior over the checks tested. The YVMV incidence among the entries ranged from 0.0 in HOK- 152-465(RC) to 26.98% in Pusa Sawani (SC).

In AVT-I, four Bhendi hybrids were evaluated against 3 Resistant Checks (HOK-152, Arka Anamika and Parbhani Kranthi) and 1 Susceptible check (Pusa Sawani). Among the hybrids, The highest yield was recorded by OKHYB-4 (117.99 q/ha) and was on par with OKHYB-6 (114.29 q/ha) and were significantly superior to susceptible check (Pusa Sawani).

AVT-II, 8 Bhendi hybrids were evaluated against 3 Resistant Checks (HOK-152, Arka Anamika and Parbhani Kranthi) and 1 Susceptible check (Pusa Sawani). Among the hybrids, the highest yield was recorded by VROH-8 (125.82 q/ha) and was on par with AROH-465 (120.81q/ha) and were significantly superior to one resistant check (HOK -152) and susceptible check.

BEAN

At VRS, Rajendranagar, four genotypes of Dolichos bean with bushy growth habit were selected from F₂ generation from the crosses obtained by crossing superior pole types DLL-18, DLL-70, DLL-71 and RND-1 with locally popular bush type, which has to be further evaluated for agronomic traits.

Among the Ten strains of cluster bean evaluated in OYT during *Kharif*, 2009, RCT-48 was found to be high yielding with good fruit quality.

AMARANTHUS

At VRS, Rajendranagar, among the fifty nine Amaranthus selections along with check RNA-I evaluated for yield and quality parameters, the accessions, EC 150199 recorded higher seed yield of 1.95 kg per plant followed by EC 150196 (1.73 kg) and EC 150194 (1.48 kg), EC 150201 recorded highest stem weight (1.82 kg /pt) and leaf yield (0.23 kg/plant).

RIDGE GOURD

At VRS, Rajendranagar, nineteen accessions collected through exploration organized by NBPGR were Characterized and evaluated. LA-181 was identified as a promising strain with high yield (2.4 kg/plant) and fruit characters (25.7 cm length, 4.93 cm width and 205.3 g weight).

Out of six entries tested under preliminary yield trial, LA-74 found to be superior with respect to yield (1.29 kg/ plant) and fruit characters.

In varietal trial AVT-II, five entries along with two checks were evaluated and entry Utkal trupti recorded significantly maximum yield (82.9 q/ha) and maximum average fruit weight (162.3 gm).



BRINJAL

At VRS, Rajendranagar, the seed of 'Improved Bhagyamathi' with green calyx which was found superior to Bhagyamathi with respect to morphological and yield characters has been multiplied and ready for minikit testing.



Improved Bhagyamathi

TOMATO

At VRS, Rajendranagar, in Tomato indeterminate AVT-II, hybrid ARTH-128 recorded highest yield (333.2 q/ha) and maximum fruit weight (97.7 gm) followed by 08/Toinhyb-1 (301.3 q/ha, 79.1gm respectively).

In Tomato Determinate AVT-II, maximum yield was recorded by entry DVRT-2 (369.8 q/ha) & maximum fruit weight (108.3), while more number of fruits per plant was recorded by VR-35 (27.0).

In Tomato AVT-II, entry NDT-9 check recorded higher yield (338.4g/k) higher fruit weight (108.7 gm) & maximum fruit diameter (6.1 cm) followed by VTG-106 (292.7 q/ha).

ASH GOARD

At VRS, Rajendranagar, five superior lines were evaluated along with check variety Shakti in advance yield trial, the number of fruits per vine were maximum in Bh - 1 (5.5) followed by Bh - 10 (5.25) where as Shakti recorded (3.5) per vine. The fruit weight per vine was recorded highest in Bh-2 (4.85 kg) over Shakti (4.62 kg). The yield/vine was highest in Bh-2 (24.2 kg) followed by Bh-1 (22.2 kg) and Bh-10 (21 kg) where as Shakti recorded check variety (16.2 kg) per vine.

Out of 26 genotypes of Ash gourd evaluated, maximum number of fruits per vine was recorded in Bh - 2 (13.5) followed by Bh - 6 (10.5) and Bh - 18 (8.5), the average fruit weight was highest in Bh -25 (12.37 kg) followed by Bh - 24 (11.0 kg) and Bh- 22 (3.83 kg) and the yield per vine was maximum in Bh -24 (44.1kg) followed by Bh - 25 (43.3 kg) where as Shakti recorded an yield of 24.5 kg per vine.





At VRS, Rajendranagar, four entries along with three checks were evaluated. Variety KAG-I recorded significantly higher yield (443.3q/ha) with highest average fruit weight (3.4 kg) among 4 entries and 3 checks tested.

SNAKE GOURD

At VRS, Rajendranagar, among twelve genotypes tested. Highest number of fruits per vine was recorded in IC-212475 (18.5) followed by TA-5 (14.7) and IC-212512 (14.6), where as fruit weight was maximum in Swetha (1.09 kg) followed by IC 2124282 (0.9 kg) and IC-410146 (0.6 kg) and Highest yield per vine was recorded in Swetha (3.5 kg/vine) followed by IC-212475 (2.6 kg/vine) and TA-4 (2.5 kg).

BOTTLE GOURD

At VRS, Rajendranagar, eighteen accessions collected through exploration organized by NBPGR were characterized and evaluated. Among the lines tested, LS-111 was identified as a promising strain with respect to earliness (first female flower appeared 60 DAS at 10th node), high yield (13.44kg/vine) with acceptable fruit characters (46.0cm length, 9.0 cm width and 1.92 kg weight).

BITTER GOURD

At VRS, Rajendranagar, thirty accessions were collected through exploration organized by NBPGR were characterized and evaluated. Among the lines tested, MC-5 was identified as a high yielding line (14.1 cm length, 4.09 cm width and 60.3 g fruit weight) with good fruit quality. After testing for another season will be utilized in breeding programme.

COOKING MELON

At VRS, Rajendranagar, among the thirty three genotypes of cooking melon evaluated highest fruit weight was recorded in RNC-2 (0.94 kg) followed by RNC- 4 (0.58 kg) and RNC 7 (0.42 kg) and highest yield was recorded in RNC 55-1 (6.45 kg/vine) followed by RNC 16 (4.67 kg) and RNC 37-1 (4.46 kg).

SPINE GOURD (*MOMORDICA DIOICA* ROXB)

At VRS, Rajendranagar, Tuberous roots of 130 female and 29 male accessions of kakrol were collected through exploration along with NBPGR from different agro ecological regions of Andhra Pradesh & Uttar Pradesh. Characterization and the preliminary evaluation of 130 female accessions of *M.dioica* revealed that the genotypes RNK-113, RNK-85 and RNK-122 were found to be horticulturally superior and high yielding. Hence these three genotypes are proposed to be used as parents for hybridization and polyploidization in the ensuing season.





Variability for leaf and fruit characteristics in *Momordica dioica* Roxb

AGAKARA

At HRS, Aswaraopet, intermediate type recorded the highest mean number of fruits per vine (25) and Trilobed type recorded the highest mean yield per vine (341.7 gr).

Development of high yielding variety of kakrol (*Momordica dioica* Roxb.)

30 accessions of *Momordica dioica* Roxb collected in collaboration with NBPGR, RS, Rajendranagar and evaluated. The genotypes RNK-112, RNK -179 and RNK - 181 found to be horticulturally superior and high yielding.



MUSKMELON

At HRS, Anantharajupet among 23 germplasm accessions studied, node at which first female flower appeared was early in Kanpur (5.67) followed by Bathasa (6.0). Maximum number of female flowers per vine was observed in Sidhout (15.00) followed by Kanpur (14.67). Kanpur recorded highest number of fruits per vine (4.00) whereas, the fruit yield was highest in Sidhout (3.31 kg) followed by Kanpur (3.02 kg). The TSS content was recorded maximum in Bathasa (14.9°Brix) followed by Kanpur (14.2° Brix).



Muskmelon germplasm at HRS, Anantharajupet

TAPIOCA

At HRS, Peddapuram, a total of 52 accessions were evaluated. Among the non bitter accessions, the entry KPSLO 5/92 recorded the highest fresh tuber yield (28.4 t/ha) followed by ARK – D and ARK – E with 27.2 t/ha. The maximum tuber dry matter (40.1%) as well as starch content (21%) was also recorded in KPSLO 5/92. Among bitter accessions both H-740/92 and PDP-7 recorded the highest fresh tuber yield (34.6 t/ha) and followed by PDP-6 and PDP-9 with an yield of 32.1 t/ha. 27.2 t/ha. The no of tubers per plant ranged between 4.8 (local) and 7.1 in accessions PDP-9 and Sree Vijaya.

At HRS, Peddapuram, significant differences were recorded among the 9 test entries evaluated in respect of plant height and fresh tuber yield per hectare. The highest fresh tuber yield was recorded in 4-2 (37 t/ha) followed by 5-3 (33.6 t/ha). However, the yield is on par with check variety TCH-2 (33.4 t/ha.). All most all test entries are susceptible to CMD and the per cent incidence ranged between 3 to 86.

CASSAVA MOSAIC RESISTANT

At HRS, Peddapuram, among 13 test entries tested significant differences were recorded for plant height and tuber yield per hectare. Significantly higher tuber yield was recorded in PDP-8 (34.5 t/ha) followed by PDP-6 (29.9 t/ha) and PDP-7 (29.8 t/ha). The CMD incidence is also nil in these entries except in PDP-6 which recorded 4%.





CASSAVA (MLT Ca08)

At HRS, Peddapuram, the highest harvest index (51.1%) was recorded in H-740/92. However, highest fresh tuber yield was recorded in Ci-848 (26.2 t/ha) followed by H-740/92 (25.7 t/ha).

SWEET POTATO

At VRS, Rajendranagar, 156 Sweet Potato varieties and 99 varieties of Colocasia are being maintained.

At VRS, Rajendranagar, among the entries tested Co-3-4 have recorded the highest mean tuber yield of 65 t/ha and 94.61 t/ha followed by SV-280 62.74 t/ha and 74.57 t/ha, where as the entry Kiran recorded the lowest tuber yield 13.57 t/ha and 21.06 t/ha at Rajendranagar and Aziznagar respectively. The harvest index in promising entries ranged from 50.35 to 53.87 per cent.

At VRS, Rajendranagar, six superior entries were evaluated. The accessions IGSPC-15 recorded the maximum tuber yield 24.03 t/ha and 89.48 t/ha followed by RNSP-1 22.47 t/ha and 55.72 t/ha where as the check variety kirana recorded the minimum tuber yield of 16.4 t/ha and 31.32 t/ha at Rajendranagar and Aziznagar respectively.

COLOCASIA

At VRS, Rajendranagar, a total of eight superior entries were evaluated with Satamukhi and Jagtial local as checks. Maximum cormel yield was recorded by KCS-2 (19.2 t/ha) followed by RNCA-1 (18.22 t/ha) and KCS-3 (18.16 t/ha) where as IGCole-E-9 recorded the minimum yield (11.13 t/ha).

Xanthosoma

At VRS, Rajendranagar, among the entries tested KKV-Xa-7 and KKV-Xa-2 recorded the maximum yield of 3.79 t/ha, followed by KKV -Xa-6 (3.24 t/ha) and where as KKV-Xa-4 recorded the lowest yield (2.25 t/ha).

At HRS, Kovvur among the short duration group KCS-3 has recorded the highest cormel yield (26.45 t/ha) followed by CA - 5 (22.22 t/ha). In medium duration group CA.9 has recorded the highest cormel yield (24.99 t/ha) followed by Satamukhi (20.25 t/ha), while among long duration group KCS-2 has recorded highest cormel yield of 28.45 t/ha followed by No-48 (22.20 t/ha).

AMORPHOPHALLUS

At HRS, Kovvur Gajendra recorded a highest yield of 56.94 t/ha followed by accession AC-24 (56.11 t/ha) and AC6 (55.0 t/ha). Among irritant types AC - 36 recorded maximum yield of 55.0 t/ha.

CHILLIES

At HRS, Lam, one hundred and seventy germplasm lines i.e., lines collected over the years and 50 new germplasm lines collected from NBPGR were evaluated. The selections were made among the 170 lines; the selected plants were selfed and multiplied.





Preliminary Hybrid yield trial of Hot pepper revealed that the hybrid LCH 08-64 recorded highest dry pod yield 8933 kg/ha, followed by LCH 08-59 (8724 kg/ha) and LCH 08-32 (8292 kg/ha) over the check Indam-5 (7030 kg/ha).

Improvement of hot pepper through hybridization followed by selection in advance generations, single plants were selected for further generation advancement and evolution from segregating material of F₂, F₃, F₄, F₅ and F₆. Promising single plants selected in F₆ generation will be evaluated in observation yield trial and used in hybridization.

In yield trial of Hot pepper, the entry RRYT T-21 recorded highest dry pod yield 5512 kg/ha, followed by RRYT T-26 (5482 kg/ha) over the check LCA-334 (4834 kg/ha).

In PYT of Hot pepper, the entries LCA- 647 recorded highest dry pod yield 5722 kg/ha, followed by LCA-679 (5583 kg/ha), LCA-675 (5528 kg/ha) and LCA-667 (5472 kg/ha) over the check LCA - 334 (4445 kg/ha).

In AYT of Hot pepper, the entries LCA- 625 recorded highest dry pod yield 6750 kg/ha with 253 pod per plant, followed by LCA-620 (6292 kg/ha) and LCA-655 (6139 kg/ha) over the check LCA -334 (4834 kg/ha).

At HRS, Lam, in IET, eleven hybrids were evaluated against two checks viz; ARCH-228 and Kasi Anmol. Among the hybrids tested, 09/CHIHBY-1 recorded the highest ripe chilli yield (222.78q/ha) followed by 09/CHIHBY-2 (215.76q/ha) found significantly superior over the checks.

In AVT-1, seven hybrids were evaluated against two checks viz; ARCH-228 and Kasi Anmol. Among the hybrids tested , 08-CHHYB-3 (203.7q/ha) followed by 08-CHHYB-8 (195.54q/ha) and 08-CHHYB-7 (181.17q/ha) recorded the highest ripe chilli yield and found significantly superior to both the checks tested.

In AVT-2, seven hybrids were evaluated against check Viz; ARCH-228. Among the hybrids tested NCH-250 recorded the highest ripe chilli yield (233.01 q/ha) and found significantly superior to all other hybrids tested and checks.

PAPRIKA

In replicated RYT of paprika 14 entries were evaluated with check LCA -436. None of the entry found significantly superior over check LCA-436

In PYT of paprika, only one entry LCA- 466 recorded highest dry pod yield 4888 kg/ha over the check LCA-436 (4053 kg/ha).

In AYT of paprika, the entry LCA- 442 recorded highest dry pod yield of 5333 kg/ha followed by LCA-450 (4889 kg/ha) and LCA-445 (4778 kg/ha) over the check LCA-436 (3944 kg/ha)

In chilli germplasm, the entries GP 89 (14.51%) and GP 82 (14.31%) recorded highest oleoresin %, GP 299 (53375), GP 132 (47672) recorded highest Capsanthin (EOA) where as GP 276 (0.581), GP 148 (0.571) recorded highest Capsaicin.

In IET-1, among 8 entries, two national checks viz., LCA 334 & JCA 283 and one local check LCA 206 tested, 09/CHIVAR-6 recorded the highest ripe chilli yield of 194.96 q/ha, closely followed by 09/CHIVAR-4 with 179.32 q/ha and 09/CHIVAR-1 with 167.25 q/ha and were found on par with one another and significantly superior to all the three checks tested.





In AVT-2 among the 7 entries two national Checks viz., LCA 206 & JCA 283 and one local check LCA 334 tested, AKC-406 recorded the highest ripe chilli yield (192.69 q/ha) and found significantly superior to all the other entries tested including checks.

CAPSICUM

At HRS, Lam, in IET, 6 entries were evaluated against one national check Nishat-1. Among the entries tested, 09/CAPVAR-3 recorded the highest yield (91.44q/ha), and significantly superior to other entries and check.

COWPEA

At HRS, Lam, in IET-1, among 4 entries, two national checks viz., Kashi Kanchan, Arka Garima and one local check tested, highest yield was recorded by 09/COPBVAR-3 (34.3q/ha) and found significantly superior and was early by 21 days over checks.

In AVT-II, among 3 entries were evaluated against two checks viz., Arka Garima and one local check. The highest yield (41.59q/ha) was recorded by Ankur Gomti and was found significantly superior to all the other entries tested. It was followed by IVRCP-6 with 32.37 q/ha and found to be early. The increased yield in Ankur Gomti could attribute to relatively greater pod size coupled with more number of seeds/pod. The increased yield in IVRCP- 6 could be attributed to greater pod size and pod weight.

CORIANDER

At HRS, Lam, sixty five entries of coriander germplasm were evaluated. Among the entries evaluated, LCC-276 recorded highest single plant yield (4.87 g) followed by LCC-281 (4.05 g), LCC-249 (3.63 g), LCC-251 (3.62 g) and LCC-248 (3.56 g) were significantly superior to the best check Sudha (1.79 g).

In MLT on coriander, among the ninety-five entries evaluated. LCC-223 recorded highest single plant yield (3.2 g) followed by LCC-208 (3.15 g), LCC-209 (3.02 g), CS-17 (2.92 g) and LCC-206 (2.90 g) were significantly superior to check Sudha (1.01 g).

In IET on coriander among the fourteen promising coriander accessions evaluated, LCC-237 recorded significantly highest yield of 705 kg/ha followed by LCC-238 with 664 kg/ha and LCC-242 with 627 kg/ha which were superior over check Sadhana (504 kg/ha) and local (437kg/ha).

In a new IET, among the twelve entries tested, LCC-219 recorded significantly highest yield of 815 kg/ha followed by LCC-227 with 812 kg/ha and LCC-226 with 811 kg/ha which were superior over check Sudha (611 kg/ha).

In CVT on coriander, among the eleven genotypes of Coriander from different coordinating centers tested, COR-30 (820 kg/ha), COR-29 (808 kg/ha) COR-25 (762 kg/ha), COR-26 (754 kg/ha), recorded significantly higher yield than checks Sudha (644 kg/ha), local (537 kg/ha) and national check Hisar Anand (447 kg/ha).

In off-season coriander trial, among the six genotypes evaluated under three kinds of shade nets i.e. 35%, 50% and 75% and control conditions, maximum green yield was recorded in 50% shade net (0.49 t/ha) which is significantly superior to all other treatments. This is followed by 35% shade net (0.45 t/ha) and 75 % shade net (0.41 t/ha). The control plot recorded only 0.26 t/ha.





Among the six genotypes evaluated, LCC-244 recorded maximum yield of 0.45 t/ha followed by LCC-234 and LCC-244 (0.36 t/ha) which are significantly superior to check Sadhana (0.36 t/ha).

In drought tolerance trial, among the entries evaluated, LCC- 200 (659 kg/ha) recorded highest yield followed by LCC-143 (658 kg/ha) which were on par with each other and significantly superior to check Sadhana (555 kg/ha). The pooled analysis of two test years where there was no rainfall after sowing (2007-08 and 2009-10) indicated that LCC-200 (594 kg ha⁻¹) and LCC-143 (547 kg ha⁻¹) recorded significantly higher yield than the best check Sadhana (484 kg ha⁻¹).

In drought tolerance trial, high SLW was observed in LCC-229 (2.51 mg/cm²), LCC-210 (2.44 mg/cm²), LCC-187 (2.44 mg/cm²), LCC-257 (2.38 mg/cm²), LCC-184 (2.36 mg/cm²) and LCC-200 (2.35 mg/cm²). The SLW for checks was 2.09 mg/cm² for Sadhana, 1.73 mg/cm² for Sindhu, 1.98 mg/cm² for Swathi and 1.88 mg/cm² for Sudha. High RWC was recorded in LCC-262, Swathi, LCC-260, LCC-229 and LCC-170. High Water Potential (WP) was recorded in LCC-219, LCC-200, LCC-210, LCC-225 and LCC-260 where as low WP was recorded in LCC-251, LCC-150, LCC-143, LCC-248 and LCC-252.

In mutation trial among the entries evaluated, the entries B5-31 recorded highest single plant yield (5.1 g) followed by C3-85 (4.9 g), A6-25 (4.5 g), A3-10 (4.5 g) and D9-92 (4.4 g) which are on par with each other and significantly superior to the best check Sudha (3.14 g).

In observation trial on MH assisted crossing of coriander, among the F₁ population of twenty crosses evaluated. The crosses i.e. LCC-143 x Sudha, LCC-215 x Sudha, LCC-149 x Sudha, LCC-186 x Sudha, LCC-163 x Sudha, LCC-139 x Sadhana, LCC-143 x Sadhana, LCC-163 x Sadhana and LCC-121 x Sadhana were found superior over respective female parents with an expression of more than 15% yield increase.

FENUGREEK

At HRS, Lam, in fenugreek germplasm trial, among the fifty-eight entries evaluated, LFC-122 recorded highest yield (1.41 g/plant) followed by LFC-78 (1.26 g/plant), LFC-114 (1.18 g/plant), LFC-102 (1.13 g/plant), LFC-71 (1.02 g/plant), LFC-110 (1.00 g/plant) and LFC-85 (0.99 g/plant) which were significantly superior to the check Lam Selection-1 (0.72 g/plant).

In MLT among the fifty four entries evaluated JFG-253 recorded highest yield (1.28 g/plant) followed by LFC-76 (1.27 g/plant), JFG-213 (1.00 g/plant), LFC-75 (0.98 g/plant), JFG-215 (0.95 g/plant) and LFC-84 (0.95 g/plant) which were significantly superior to the best check LS-1 (0.62 g/plant).

In IET among the 12 promising lines were evaluated, LFC-121 recorded significantly highest yield of 293 kg/ha followed by LFC-97 with 291 kg/ha and LFC-98 with 269 kg/ha which were superior over check LS- 1 (183kg/ha) and PEB (155 kg/ha).

In CVT among the sixteen genotypes from other coordinating centers evaluated FGK-31 (362 kg/ha), FGK-35 (311 kg/ha), FGK-26 (308 kg/ha), FGK-32 (292 kg/ha), FGK-36 (278 kg/ha), and FGK-37 (277 kg/ha) recorded significantly higher yield than the check LS-1 (196 kg/ha), Local(177 kg/ha) and Hisar Sonali (162 kg/ha).





FENNEL

At HRS, Lam, in MLT, among the ninety five entries evaluated, highest yield was recorded in JF-510-1 (18.34 g/plant) followed by JF-345 (15.68 g/plant), JF-522 (15.64 g/plant), JF-546 (15.38 g/plant), JF-548 (14.87 g/plant) were significantly superior to the best check Lam Selection-1 (10.10 g/plant).

AJOWAN

At HRS, Lam, in MLT, among fifty-five entries evaluated, highest yield was recorded in AA-22 (10.57) followed by LTA-35 (9.75 g/plant), AA-54 (8.56 g/plant), AA-27 (8.23 g/plant), JA-189 (8.16 g/plant) and AA-72 (7.89 g/plant) were significantly superior to the best check GA-1 (4.51 g/plant).

Among the Forty seven accessions obtained from NRCSS, Ajmer were evaluated with Lam Selection I as check, AA-40 (9.98 g/plant), AA-30 (7.29 g/plant) were significantly superior to check LS-1 (4.07 g/plant).

FLOWERS

GLADIOLUS [*Gladiolus byzantinus*]

At HRS, Pandirimamidi, varieties differed significantly for plant height, spike length, number of florets, number of corms / plant and number of cormels/corm. Plant height was significantly highest (76.8 cm) in Dhanvantari. Spike length was highest in Shabnam (90.5 cm). Number of florets per spike however was highest in Jyotsuna (16.4). Highest number of corms and cormels/plant were found in variety Apple Blaid (24.3& 378.3).

At ARI, Rajendranagar, eight new varieties were added to the germplasm. The varieties Swarnima and Bindiya showed early flowering (45 and 47.2 days respectively) while delayed flowering was observed in Archana and Snow White (more than 90 days). Number of flowers/spike was maximum in Golden Goddess (15.4) and IARI hybrids also showed on par results. Field life was maximum in Hybrid 94-101 (16.8 days) and on par in Hybrid 94-4 (16.0) and American Beauty (16.0 days).

CHRYSANTHEMUM

At ARI, Rajendranagar, among 123 varieties of chrysanthemum evaluated for their performance, the days taken by the cultivars to their first bud appearance ranged between 58 to 99 days. Number of flowers / spray was maximum in Chandrama and Basanthi (8.4 and 8.1 respectively). Diameter of the flower ranged from 1.9 cm in local button to 8.2 cm in Shaffali. Duration of flowering was maximum in Raichur with 180 days extended availability of flowers.

CARNATION

At ARI, Rajendranagar, among 25 lines of carnation were evaluated, the variety Tempo recorded maximum plant height of 70.1 cm while the red colored varieties Corsa showed early flower bud initiation (83.6 days) and also early flower opening (15.6 days). Tempo and Corsa also exhibited more no. of flowers/plant (6.4 and 6.2 respectively). Though Tempo recorded maximum flower stalk length (64.2 cm), size of the flower was more in Gaudina (5.62 cm) while maximum vase life was noticed in Viking and Schubert (12 days).





Among 11 varieties evaluated, Gaudina, the red coloured variety exhibited maximum plant height of 68.32 cm. More number of flowers/plant (6.32) and early flowering was noticed in Corsa. Size of the flower was maximum in IIHRP01 (5.72 cm) while longer flower stalk was recorded in Firato (59 cm).

TUBEROSE

At ARI, Rajendranagar, among 11 germplasm lines evaluated, 7 are of single whorl types and 4 are of double types. Among singles, Parjwal recorded maximum plant height (51.5 cm), while maximum number of leaves was observed in Hyderabad single (34.9 cm). The number of florets/spike, floret, weight & diameter were highest in Prajwal followed by Hyderabad Single.

Among the double varieties, maximum number of florets (47.4) and extended vase life of 6.4 days was recorded in Hyderabad Double. The varieties Vaibhav and Suvasini also performed well.

The hybrid GK-T-C-4 from Ganeshkind was added to the collection test its performance. The results revealed that, among singles, early flowering (66.9 days) was noticed in Hyderabad Single followed by Prajwal (67.7 days). Regarding floral characters, Hyderabad Single showed more number of florets/spike (34.1) followed by Prajwal (32.2) while floret size and spike weight were highest in Prajwal.

Among doubles, early flowering was noticed in Hyderabad Double while more number of florets/spike, maximum spike length and floret diameter was observed in Suvasini.

HELICONIUM

At HRS, Pandirimamidi out of 19 species studied only 10 species attained flowering stage. Among 10 species, Early flowering (22 weeks after planting) was noticed in Heliconia X nickeriensis Mass de Rooij and Heliconia densiflora. In Heliconia rostrata, longest inflorescence (122 cm) and number of bracts / inflorescence (18) were recorded. Inflorescence length was least in Heliconia latispotha Big orange (Eden Pink) (61 cm) and least number of bracts/ inflorescence (2.9) was recorded in Heliconia psittacorum "Parakeet".

CUT FOLIAGE AND FILLERS (Asparagus, Gypsophila, Ferns and Philodendron)

At ARI, Rajendranagar, in Asparagus Meyers enhanced growth with regard to plant height, spread, leaf length, width and number of leaves was observed high during winter months from October to January compared to rainy season, whereas leaf longevity was more during rainy season. Leaves were produced at faster rate in winter compared to rainy season. Same trend was observed in Asparagus springeri and Diaffenbachia sps. In philodendron types there was not much difference in leaf production interval among different months and also in growth characters. But based on the type of philodendron, the leaf production interval varied from 9.1 to 13.0 days in Type-1 to 35 to 49 days in Type-9.



SPICES

GINGER

At HRS, Pandirimamidi among the varieties CTP-local and Suprabha significantly recorded the maximum number of tillers (9.3) & (9.2) per plant than others.

TURMERIC

At HRS, Anantharajupet among 25 short duration cultivars of turmeric, maximum fresh rhizome yield was recorded by CLI -370 (41.57 t/ha) followed by KTS-7 (40.65 t/ha). In 19 medium duration cultivars, maximum yield was recorded by CLI - 322 (53.50 t/ha) followed by CLI -317 (47.89 t/ha). Among 88 long duration cultivars, maximum yield was recorded by G.S. (50.54 t/ha) followed by Alleppy (48.91 t/ha).

Under initial evaluation trial of turmeric, CLS-369 (42.45 t/ha), G.L.Puram (40.16 t/ha), CLI-325(33.01 t/ha) and PCT-2 (32.46t/ha) recorded significantly higher yields compared to local check, Mydukur (27.11 t/ha).

At HRS, Pandirimamidi, varieties differed significantly for yield per plant and plot yield but non significant regarding the parameters like plant height number of leaves and tillers. Highest yield per plant is observed in CLS-369 (0.96kg) followed by CL-37 (0.87), TCP-2 (0.69) and Ranga (0.68). Among the varieties highest yield per plot is recorded in CLS-369(45.6kg/plot).



At TRS, Kammarapally, 273 (189+84) genotypes/germplasm collections are being maintained at HRS Jagtial. Genotypes are grouped into long (8-9 Months), medium (7-8 Months), short duration (6-7 Months) based on duration.

Among the germplasm lines tested, Tella duggirala (JTS-1) recorded highest rhizome yield (29.6 t/ha) followed by JTS-3 (29.0 t/ha).

C V T V I

Out of twelve (12) cultures tested, IT-1 has recorded more fresh rhizome yield (23.91t/ha) followed by PTS-59(22.78 t/ha) in comparison to Duggirala red check variety (20.74 t/ha).

COMPARATIVE YIELD TRIAL

Out of ten (10) cultures tested, JTS-401 has recorded more fresh rhizome yield (31.54t/ha) followed by JTS-403 (31.44 t/ha) in comparison to Duggirala red check variety (27.39 t/ha).



GENOTYPE X ENVIRONMENT INTERACTION ON QUALITY OF TURMERIC

Among the eleven genotypes tested Suranjana recorded the highest fresh rhizome yield (24.75 t/ha) followed by CLI-317(24.09 t/ha), Roma and NH-1 and lowest yield was observed in Prathibha (20.6 t/ha).

PLANTATION CROPS

RUBBER

At HRS, Pandirimamidi among growth parameters RRIM 600 recorded maximum plant height (11.4 m), spread (6.75 m E-W & 6.33 m N-S) and girth (75.00 cm). During 35 days of taping highest latex yield (5.56 lit/tree) and dry rubber (2.33 kg/tree) recorded in PB 28/59 with highest per cent (41.60 %) of rubber recovery.

PALMYRAH

At HRS, Pandirimamidi, initiation of flowering occurred from December to February among different palms in various accessions. Number of bunches per palm ranged from 1 to 9. Mean number of fruits per bunch ranged from 2 to 12.5. length of bunch varied from 0.5 to 1.6 m.

BETELVINE

At HRS, Anantharajupet among 22 Bangla types, maximum leaf yield was recorded in Awamipaan (61.36 lakhs/ha) followed by Karapaku (59.53 lakhs/ha). Among Kapoori types, maximum leaf yield was recorded in Pachakodi (45.72 lakhs/ha) followed by Kapoori (Kadapa) (40.94 lakhs/ha). The marginal lamina was entire in all the clones except in Awamipaan (Wavy). The no. of main veins were 7 in all the clones. The texture of leaf was smooth in all the clones except Awamipaan (rough).

IET in betelvine, maximum leaf yield was recorded in Tellaku (Mukkavaripalli) (26.16 lakhs/ha) followed by Swarna Kapoori (17.51 lakhs/ha). Among 6 Bangla clones, maximum leaf yield was recorded in Bangla Nagaram (29.00 lakhs/ha) followed by SGM-1 (21.99 lakhs/ha). The marginal lamina was entire in all the clones and leaf tip acute in all the clones. No. of main veins were 7 in all the clones and the texture of leaf was smooth.

FOREST PRODUCE

MYROBALON

At HRS, Pandirimamidi, in Myrobalan ACC-2 recorded 9.65 m plant height with spread (6.12 EW & 6.23 NS) and highest plant yield per tree in ACC-1. ACC-2 in marking nut recorded maximum plant height 9.10 m with highest spread (3.93m EW & 3.53 NS) in ACC-1. ACC-1 in Gumkariya (plant height 8.00 m; plant spread 7.22 m E-W, 7.33 m N-S) and ACC-1 in nux vomica (plant height 7.57 m; plant spread 3.02 m E-W, 3.17 m N-S) recorded highest plant growth and spread. In tamarind Acc-1 recorded maximum height (12.85) with spread (8.83m EW & 9.13m NS). Highest yield per plant was observed in Acc-12 (23.6kg) & ACC-13 (34.4kg). In annatto ACC-2 noted plant height (4.81 m) with spread (8.10 m EW & 6.10 NS); pod number (19) with a highest yield (2.7 kg) than other accessions. In soap nut Acc-4 highest yield (0.683 kg/tree) than others. In custard apple highest number of fruits were recorded in ACC-1 (18) followed by ACC-9 (12.0) ACC-9 (12.0).



B. CROP PRODUCTION

FRUITS

MANGO

At HRS, Anantharajupet high density planting of mango, pruning up to 2nd node and spraying $Znso_4$ @ 0.5% + urea @ 2% recorded higher number of sprouted buds per shoot(6.04), number of new laterals per shoot (5.64) and higher number of flowered laterals (0.19) and number of fruits per panicle(0.73).

GRAPE

At HRS, Aswaraopet, four different wine grape varieties i.e Cabernet sauvignon, Shiraj, Sauvignon blanc & Chenin black were grafted on the Dogridge rootstock in the months of October & November 2009. Flowering and fruit set was noticed in Shiraj and Sauvignon blanc varieties only.



Field view of Shiraj fruits



Field view of Sauvignon blanc fruits

SWEET ORANGE

At CRS, Tirupati, in sweet orange Arbuscular mycorrhiza of 0.5 kg/Plant, 0.1 kg/plant of phosphate solubilising bacteria, 0.1 kg of Azospirillum and 0.1 kg of T.harzianum with 75% RDF produced highest yields (595, 108.80 kgs of fruits) per plant per year.

In sweet orange fertigation trial, stem girth (46.15 cm) and canopy volume (33.56 cu.m.) were more in recommended dose of Nitrogen through drip and Potassium applied through soil. The yield both in number and weight (410 fruits weighing 77.49 kgs) per plant was found higher in recommended dose of Nitrogen and 75% K applied through drip irrigation system than other methods.



At HRS, Mallepally application of 100 kg farm yard manure + 1 kg urea followed by light irrigation 15 days after stress induced stress and recorded maximum fruit number of 526.33 in Sweet orange.

Spraying of thiourea @ 0.5 % induced stress and recorded maximum number of fruits (248) per tree, in Sweet orange for crop regulation.

In Sweet orange, maximum plant height (236.66 cm) and stem girth (7.26 cm) and spread in East – West (277.33 cm) and North-South (260.33 cm) was recorded in the plants applied with 900-210-320 gm / tree N:P:K as inorganic form.

SAPOTA

At HRS, Mallepally, maximum yield (38.28 kg) recorded when the plants were applied with 50 % inorganic + 25 % farm yard + 25% green manure (Sunn hemp) in Sapota.

POMEGRANATE

At HRS, Anantharajupet in pomegranate, Bhaguva recorded maximum plant height (2.45 m), girth (41.00 cm), no. of branches (2.88) and plant spread. The no. of fruits recorded were maximum in Bhaguva (39.50) compared to Mridula (22.15).



BANANA

There were no significant differences either in growth or yield of Karpura chakkerakeli under different levels of irrigation at different stages.

At HRS, Kovvur, growth, bunch weight and yields are affected by irrigation levels. At 50 per cent level, there was no significant difference in growth during rainy season as all the treatments were influenced by rainfall. During non rainy period treatments with 50 and 70 per cent irrigation levels have shown the symptoms of water stress i.e. wilting pale colour on lamina and midrib, drying of youngest leaf and in severe cases i.e. when the temperatures rose to 40⁰ C and beyond, leaf lamina, midribs turn pale, necrotic spots (black patches) appeared on pseudo stems, drying of leaves proceeds downwards from youngest leaf. Breaking of pseudo stems was also recorded. Bunch emergence was not proper i.e. shortened peduncle, finger size was also reduced.



PASSION FRUIT

At HRS, Anantharajupet the grafted plants of Passion fruit variety Kaveri started flowering five months after planting whereas seedlings were in vegetative stage. The grafts produced 7.37 fruits per plant with average fruit weight of 98.12g, fruit length of 56.91mm, fruit diameter of 55.40mm and rind thickness of 3.23mm. The physico-chemical characters of fruits *viz.*, TSS (19.0° Brix), acidity (3.25%) and percentage of juice (30.76%) were recorded and average number of seeds per fruit was 99.25.



FLOWERS

GLADIOLUS

At ARI, Rajendranagar, Significant differences were observed for all the characters studied Gladiolus cv. IIHR-87-22-1. Earliest flowering (60.7 days) was observed when T4-(75% RDF+FYM (1kg/m²) – Vermicompost (300g/m²) + Azospirillum (2g/pl) + PSB (2g/pl) was applied whereas late flowering was noticed when T1-(100% RDF) was applied along with FYM. Duration of flowering was maximum (12.1 days) in 75% RDF+ FYM (1 kg/m²) + Vermicompost (300 g/m²) + Azospirillum (2 g/pl) + PSB (2g/pl) followed by T3 (75%RDF+FYM(1 Kg/m²) +Vermicompost (300g/m²).

Length of the spike, weight of spike, number of florets/spike and floret size were maximum in T4 followed by T3. While poor performance was noticed among the plants treated with 50% RDF + FYM.

CARNATION

At ARI, Rajendranagar, in the INM trial in cv IIHR P-1, among all the characters studied, diameter of bud showed non- significant differences. Plant height, number of leaves and leaf length were found to be maximum in T4(75%RDF Vermicompost(300g/m²) +Azospirillum(2g/pl)+ PSB(2g/pl) followed by T3 (75%RDF+FYM (1 Kg/m²) + Vermicompost (300g/m²). Stalk length of flower, number of flowers/plant and flower diameter were maximum in the plants treated with T4-75%RDF+FYM+Vermicompost +Azospirillum + PSB) followed by T3.

CHRYSANTHEMUM

At ARI, Rajendranagar, in the INM of chrysanthemum cv. Basanthi, among the vegetative characters studied plant height showed significant differences, whereas days to first bud appearance showed non significant differences. Plants treated with 75% RDF + FYM (1Kg/m²) + Vermicompost



(300g/m²) + Azospirillum(2g/pl) + PSB(2g/pl) showed superiority in all the floral characters viz., flower diameter, flower weight, duration of flowering and number of flowers/plant followed by T3 and T7. Thus combined application of 75%RDF, FYM, Vermicompost, Azospirillum and PSB was found to improve all characters.

Studies on performance of pot mums in cv. Punjab Anuradha with different potting media revealed that maximum plant height and number of branches/plant was recorded in Coco peat + sand + Vermicompost (2:1:0.5:0.5) followed by Soil + sand + FYM + Vermicompost (2:1:0:0.5:0.5). Hence the combination of FYM, Vermicompost and sand with either coco peat or soil were found to be better medium for good growth of pot mums.

TUBER CROPS

CASSAVA

At HRS, Peddapuram, 3 varieties (TCH-2, H-165 & s-856), two levels of Fertilizers (60:60:60 kg NPK /ha (F1) and (75:60:60 kg NPK/ha (F2) and three levels of pruning P1 (no pruning), P2 (1/3rd top portion at 3 months after planting and P3 (1/3rd top portion at 3 & 6 months after planting) were tried. Both the varieties TCH-2 and S-856 recorded significantly higher tuber yield (21.4 t/ha) over H-165 (19.0 t/ha). Similarly fertilizer levels and also pruning treatments significantly influenced the cassava tuber yield. However, the interactions were found non significant.

Significant differences were recorded for yield per hectare and tuber diameter in H-165 variety. However, no. of tubers per plant, tuber dry matter and starch content did not significantly influenced by different INM treatments. The treatment 3/4 RD of FYM + N & K + Greenleaf manure (Glyricidia leaf@25 t/ha) + 3% panchagavya foliar spray followed by 3/4 RD of FYM + N&K + Greenleaf manure (Diancha @ 20 kg/ha) recorded significantly higher tuber yields (18.8 t/ha) over the control (14.6 t/ha).

At HRS, Peddapuram, 3 varieties and 4 levels of pruning were tried V2 (CI-649) and V1 (S-856) both being on par recorded significantly higher tuber yield/ha (31.58 t and 30.62 t/ha respectively) over V3 (H-165 i.e., 23.86). Defoliation levels also caused significant influence on leaf yield as well on tuber yield. However, the interaction effects found not significant.

ELEPHANT FOOT YAM

At HRS, Pandirimamidi, August and September plantings were recorded highest plant height, yield per plot than other months of planting. Hybrid Indra recorded highest yield 38.9 kg per plot than Bomby and Orabelli.

VEGETABLES

OKRA

At VRS, Rajendranagar, the effect of vermi wash on yield of Okra with 1-5 number of sprays at weekly intervals in combination with half RDF fertilizers and Vermicompost @ 5 t ha⁻¹ were studied. It was found that spraying of Vermiwash @ 4-5 sprays at weekly intervals 30 days after sowing with 75% RDF or VC@ 5 t ha⁻¹ recorded highest yield (100.9 t/ha).



GHERKINS

At HRS, Aswaraopet, three varieties namely Sparta, Ajax, Casata were tested with 3 different months of planting i.e. October, November & December and noticed that October month planting with Casata variety recorded the highest yield 441.4 g/plant followed by Sparta 436.2g and Ajax 416.8 g.

AMARANTHUS

At VRS, Rajendranagar, testing different types of organic nutrient supply, resulted that FYM applied @ 20 t/ha PSB + Azospirillum @ 5 kg /ha recorded highest yield (106 of /ha) regarding quality with the varieties RNA-1 with neem cake @ 2+ t/ha +PSB + Azospirillu @ 5 kg/ha application recorded lowest oxalates.

PALAK

At VRS, Rajendranagar, application of Vermicompost @ 5 + t/ha or FYM @ 20 t/ha with PSB + Azospirillum @ 5 kg t/ha recorded highest yield (528 t /ha) in All green and Arka anupam. Lowest oxalates were recorded in Arka anupam (good quality).

BROCCOLI

Identification of suitable locations for non-traditional crops for different regions (Chinese cabbage, Brussels sprout and Sprouting broccoli).

At VRS, Rajendranagar, of the three non-traditional vegetables tested for their adoptability under open field conditions in Hyderabad all the three viz., Chinese cabbage, Brussels sprout and sprouting broccoli fared well with an yield potential of 61.99, 27.86 and 12.89 t/ha respectively. Among the three, Chinese cabbage was found to be highly prone to aphids, diamond back moth and *prodenia*, while the remaining two were relatively free from these pests.



Identification of suitable locations for non-traditional crops for different regions
(Chinese cabbage, Brussels sprout and sprouting broccoli)

At HRS, Anantharajupet Broccoli grown under 35% shade recorded maximum curd weight (478.74g), curd height (23.28 mm), curd diameter of the (22.47mm) and yield (17.71 t/ha) compared to 50% and 75% shade.

CAULIFLOWER

At HRS, Aswaraopet, four different varieties viz NS 60 N, Basant, Silver cup 60, Swetha early tested at three different dates of planting viz October, November and December and noticed that more yield was recorded in NS 60 N (4.51 tons/ac) followed by Basant (4.21 tons/ac) during October month transplanting.





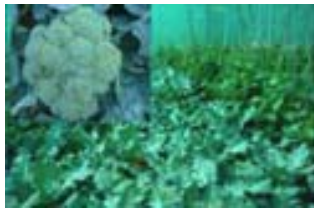
Field view of Cauliflower crop



NS 60 N - Highest yielder at HRS, Aswaraopet

CABBAGE

At HRS, Anantharajupet, red cabbage grown under 35% shade produced maximum head weight (548.32g), head height (155.56mm), diameter of head (92.89mm) and highest yield (20.29 t/ha) followed by open field condition.



CAPSICUMS

Green and Yellow Capsicums recorded maximum yield when grown under 50% (95.23 t/ha & 106.66 t/ha) and 75% (88.83 t/ha & 102.57 t/ha) shade, whereas, Red Capsicum recorded maximum yield under 50% shade (104.76 t/ha) followed by 75% shade (89.38t/ha).



Red Cabbage



Capsicum





SPICES

TURMERIC

At TRS, Kammarpally, among all the treatments tested 75% RDF through drip-fortnightly once treatment recorded highest rhizome yield (27.2 t/ha) followed by 100% RDF through drip- weekly once treatment (26.80 t/ha) where as 50% RDF through drip- fortnightly once treatment recorded lowest rhizome yield (23.5 t/ha).

CHILLI

At HRS, Lam, effect of seed coatings on germinability, vigour, field emergence and storability of chilli seed revealed that under ambient conditions the seed can be stored viable for 12months without any seed treatment. However, when treated with polymer and polymer with different plant protection chemicals the seed was viable under field conditions. The treatment when seed treated with polymer alone was viable and recorded germination of >60% upto 6months of storage.

Effect of different concentrations of polymer coating on seed quality in vegetable crops with 4 chemicals as one factor and storage period (Initial, 6 Months and 12 months) as second factor revealed that when the seed was treated with polymer at different concentrations, the seed loses its viability after three months of storage. Untreated seed was found to be superior over all other treatments.

CORIANDER

At HRS, Lam, three treatments with rhizobacteria were evaluated in farmer's fields. Among the treatments evaluated, the seed treatment and soil application of FK14 + FL18 resulted significantly superior leaf yield (1076 t/ha) over control (851 t/ha) which was on par with seed treatment and soil application with FK14 alone (1037 t/ha).

In coriander, ten treatments with supplementation of N with different manures were evaluated and 100% N + Azospirillum + 5 t/ha FYM) recorded maximum yield (867kg/h) being on par with RDF (777 kg/h), 10t FYM/h (761 kg/h) and significantly superior than control (457 kg/ha).

Irrigation through Raingun, Sprinkler and Flooding in coriander were statistically at par. However, among the irrigation schedules, irrigation at 30 and 60 DAS recorded highest yield (995 kg/ha) followed by irrigation at 45 and 60 DAS (883 kg/ha) which were on par with each other and significantly superior to the control (611 kg/ha).

FENUGREEK

At HRS, Lam, three treatments with rhizobacteria were evaluated in farmer's field of Fenugreek the seed treatment and soil application of FK14 + FL18 resulted significantly superior leaf yield (1.57 t/ha) over control (1.51 t/ha) which was on par with seed treatment and soil application with FK14 alone (1.51 t/ha).

GERBERA

At HRS, Pandirimamidi plant spread and number of leaves per plant were significantly differed in all varieties (60 DAP). Plant spread was highest in Debora (E-W 42.90 cm & N-S 42.15 cm) followed by Banesa (E-W 42.20 cm & N-S 42.30 cm). Number of leaves per plant was highest in Debora (17.15) and least in Avemaria (10.90).





TUBEROSE

At ARI, Rajendranagar, in Hyderabad single maximum number of leaves was noticed in the plants treated with 75% RDF + FYM (1Kg/m²) + Vermicompost (300g/m²) + Azospirillum (2g/pl) + PSB(2g/pl (41.87) (T4) followed by (75% RDF + FYM (1Kg/m²) +Vermicompost (300g/m²) (T3) (40.1) and T7(39.9). Earliest flowering was observed in T4 (74.1days) followed by T3(76.1 days). Floral characters viz., length of the spike, weight of the spike, number of flowers/spike were maximum in T4 followed by T3 and T7. Regarding bulb characters, non significant differences were observed.

PLANTATION CROPS

COCONUT

At HRS, Vijayarai, in coconut under red sandy loam soils reveal that highest nut yield per palm (148 nuts) was recorded with N3P2K2 i.e.575g N; 320g P₂O₅ and 1500g K₂O per palm per year followed by N2P3K1 i.e. 460g N; 400g P₂O₅ and 1125g K₂O per palm per year has recorded an yield of 130.5 nuts/palm/year. However, the cumulative nut yield per palm was highest with N3P1K1 i.e.575g N; 240g P₂O₅ and 1125g K₂O per palm per year (922.10 nuts).

PALMYRAH

At HRS, Pandirimamidi, days taken for initiation of flowering ranged from 29.25 to 57.75 days among the treatments. The highest neera yields have been recorded with control (375.51) followed by 50% defoliation (251.395). Relative water content of leaves did not vary among the treatments. Highest neera yields have been recorded in March followed by February month.

Environmental factors like temperature and humidity appears to have played limited role in neera yields. For higher neera yields, temperatures of above 33°C (max) and above 18°C (Min) Relative humidities below 95% (AM) and below 37% (PM) are found to be essential. Rain fall hinder the flow of neera yields.

Mean number of bunches/palms was highest in 30% followed by 70%defoliation. Least number of bunch/palm was recorded in 90% defoliation. Mean no. of fruits per bunch was highest in 70% followed by 50, 30 and control. Average weight of bunch highest in 70% followed by 50%. Average weight of fruit was highest in 50% followed by 30%. Mean nungu yield was highest in 70% followed by 30%.

Male palms started giving out the inflorescences early in the months of November and December compared to female palms emergence of inflorescences as taken place in the month of January. Mean length of inflorescences was 1.21 in male palms and 0.69 in female palms. Growth rate of inflorescence varies 5.18 to 10.9 in male and 8.33 to 11.77 in female palms.



C. ENTOMOLOGY

FRUITS

MANGO

At HRS, Anantharajupet different mango varieties were screened for weevil species diversification and the species identified are, *Mylocherus discolor*, *Mylocherus viridanus*, *Mylocherus undecimpustulatus*, *Amblyrhinus poricollis*.

Epidemiology studies:

Hoppers, thrips, leaf webber and fruit flies were the major insect pests on mango during the period under study. Hopper incidence started from 1st week of August and population increased till 2nd week of October and then declined, but further population gradually increased again from 2nd week of January upto 2nd week of March with peak incidence observed in the 1st week of March (9 standard week). Similarly, thrips incidence was noticed in the last week of August but peak incidence of the pest was observed in March month.

Leaf webber infestation initiated in the month of July coinciding with new flush and peak incidence observed during second fortnight of February. Fruit flies incidence started in the month of April, but higher incidence was observed in the months of May and June. The stone weevil infestation initiated in May 1st week (18 standard week) and damage continued till the end of June. Other insect pests of mango observed are ash weevils, flea weevils, leaf twisting weevils, leaf cutting weevils with population observed in the months of August and September.

In relation to shelters of mango stone weevil, maximum number of weevils (11) were found from trunk bark, cracks and crevices followed by leftover and collected stones. It was also observed that, female weevil prefers to lay eggs in the middle portion of fruit compared to sinus and pedicel part and similarly maximum number of eggs (98.5%) emerged from middle part of the fruit than other portion of fruit.

Diversity of weevils on mango at H.R.S. Ananthrajupeta





Percent infestation of stone weevil was recorded in different varieties and it was found that, Neelum and Banglora were more susceptible than Neeleshan, Peddarasam, Chinnarasam etc. The survey carried out in two districts i.e. Kadapa and Chittoor showed that, Neelum and Banglora were more susceptible and it was even observed that infestation was higher in mandals of Chittoor (4-30%) than Kadapa (3-8%).

Among the insecticides evaluated, spinosad 45%SC was found to be effective against mango stone weevil, *Sternochaetus mangiferae* with less infestation (8%) followed by profenophos (11%), emamectin benzoate 5%SG and indoxacarb 14.5%SC and in control the infestation was to the extent of 34%. In the management of mango leaf webber studies, emamectin benzoate @ 0.75g/ litre was found effective with least number of webs and in control the infestation was 83 webs / tree. Among the cultivars observed for infestation, Jehangir, Yellamanda, Neelum and Manjeera were more susceptible compared to Mallika, Alphonso and Baneshan.

Among the insect pests observed on grape are a lepidopteran defoliator, identified as *Aegocera bimacula* (Noctuidae) and flea beetle, *Scelodonta strigicollis*, damaging tender buds.

At MRS, Nuzvid, Thiamethoxam @ 0.005% was effective against thrips and hoppers in mango crop. Chloripyrifos + Dichlorovas (0.05% + 0.11%) was found effective.

GRAPE

At GRS, Rajendranagar, the results revealed that the peak activity of flea beetle (*Scelodonta strigicollis*) was recorded from September to October (36 to 43 std weeks); chaffer beetles (*Holotrichia* sp) from July to August (26 to 34 std. weeks), mealy bug (*Maconellicoccus hirsutus*) from March to April (7 to 14 std. weeks), stem bores (*Coelosterna scabrator*) from February to March (6 to 12 std. weeks)

The results revealed that all treatments viz., Fipronil, @ 1ml, Thiamethoxam @ 0.25g; Imidacloprid @ 0.3 ml; Spinosad @ 0.3 ml; Dimethoate @ 2ml per liter of water were very effective against this pest

Among the treatments tried Spirotetramat @ 0.5 ml /ℓ is very effective against grape mealy bug, *Maconellicoccus hirsutus* compared to other treatments

Among the treatments tried injection of Dichlorvos @ 2ml / live hole and petrol @ 2 ml/live hole were very effective to control grubs of stem borer

SWEET ORANGE

At CRS, Tirupati, triazophos 0.05% followed by profenophos 0.1% are found significantly superior over control in reducing rust mite damage. Among the natural products neem oil 1% followed by NSKE 5% was found effective.

Imidacloprid 200 SL (0.005%) was found effective upto 14 days after spray followed by Thiodicarb 0.75% and Thiamethoxam 0.05% in reducing the leaf miner incidence. Among the plant products NSKE 5% was found effective in controlling citrus leaf miner.





Propargite 57 EC (0.057%) was found significantly superior over control upto 7 days after treatment followed by Triazophos 40 EC (0.06%) and Ethion 0 EC (0.05%). Among the natural products, Neem oil 5% was effective in reducing the mite incidence on both fruits and leaves in citrus.

SPICES

CHILLIES

At VRS, Rajendranagar, Neem oil 1%, Pongamia oil 1%, Jatropha oil 0.1%, Castor oil 1% were found to be ineffective in reducing thrips population. While chemicals like Spinosad and Acephate proved to be effective (1.33 & 3.67 thrips per plant)

At HRS, Lam, Fipronil@2ml was highly effective against Blossom midge. Chlorfenpyr @2ml, Diafenthiuron@1.5g and Emamectin Benzoate@0.4g also effective in blossom midge control.

Spinosad@ 0.25 ml, Difenthurion @ 1.5gm, Chlorfenpyr @ 2 ml and Fypronyl @ 2 ml/l found significantly effective against chilli thrips.

Fenpyroximate@ 1ml , Abamictin@0.25 and Propergite@2ml were found to be effective against mite.

Spinosad@0.25 Chlorfenpyr@2 ml, Emamectin benzoate0.4g, Lufenuron@1 ml. were found to be effective in controlling the pod borers.

Integrated Pest Management: The following methods of pest management resulted high cost benefit ratio(1 :2.21) than Non-IPM methods(1.1.31

a) Cultural methods

Deep ploughing of the field in summer, application of FYM and balanced use of chemical fertilizers, growing of Castor and marigold in chilli field as trap crops against Spodoptera and

Helicoverpa pod borers. Two to three rows of Sorghum/maize as border crop around chilli field as barrier crop to limit immigration of insect pests and to encourage build up of beneficial insects like predators and parasites to take care of the key pests that occur on chilli crop.

b) Mechanical methods

Erecting bird perches @ 10/ac to promote predation of pod borers. Hand picking and destruction of egg masses, larval colonies and caterpillars from trap crops and main crop to reduce the pest load

c) Bio-control methods

Spraying of neem (Azadiractin/NSKE) as deterrent and antifeedent preferably mixed with insecticide is beneficial.



d) Monitoring of pests

Monitoring of pod borer build up in chilli field by establishing pheromone traps @ 4/ac.

e) Chemical methods

Seed dressing before sowing with imidacloprid 70 WS @ 8 g/kg of seed using gum as adhesive prevents early season sucking pests viz., thrips and aphids for about 40 days.

Fipronil 0.3% granules at 80 g/40 sq.m or carbofuran 3 % G @ 130 g/40 sq.m may be applied to the nursery at the time of sowing.

Soil application of 0.3% fipronil G @ 20 kg/ha or carbofuran 3% G @ 33 kg/ha twice at 15 and 45 days after planting ensuring sufficient moisture in the soil.

Need based selective use of insecticides.

Use of IGRs like Novaluron/ Diflubenzuron.

VEGETABLES

BRINJAL

At VRS, Rajendranagar, application of FYM 10 t/ha and neem cake 500 kg/ha proved to be the best in reducing the population of sucking pests as well as the borer incidence and recorded higher yields (39.62 t/ha) compared to the recommended dose of NPK in inorganic form (24.59 t /ha) and control (21.87 t /ha).

Application of Spinosad 45 SC @0.5 ml/lt proved to be the best and recorded lowest fruit damage of 13.62% followed by Emamectin benzoate with 17.23% damage.

TOMATO

At VRS, Rajendranagar, Brinjal attracted more number of whiteflies (34.50 per plant) which can be used as trap crop in Tomato.

CAULIFLOWER AND CABBAGE

At VRS, Rajendranagar, IPM module consisting of border planting of Chinese cabbage as trap crop and spraying the trap crop with dichlorovos (1ml/lt) at weekly intervals kill the trapped DBM larvae. Spraying of SI NPV and NSKE (4%) proved to be the best and recorded highest yield of 45.8 t/ha.





D. PLANT PATHOLOGY

FRUITS

GRAPE

At GRS, Rajendranagar, (Fenamidone 10% + Mancozeb 50%) 60WGG was very effective in control of the downy mildew disease after forward pruning.

After forward pruning Fusilazole at 40days, Penconazole + Potassium bicarbonate at 60 days, Triademephon at 70 days, Hexaconazole +Potassium bicarbonate at 80 days, Myclobutanil at 90 days (T1) and Azoxystrobin 23 SC and Pyraclostrobin 20% WG at 105 and 120 days were found effective in management of powdery mildew in grapes for export purpose.

Epidemiological studies:

Maximum temperature in the range of 28 – 33^o, minimum temperature in the range of 22-23^oc mean temperature in the range of 25-33^oC, RH(I) in the range of 85%-92%, RH-II in the range of 60%-70% and wind speed in range of 3-7 km/h were highly favourable for the anthracnose disease.

Temperature in the range of 29 – 34^o C, minimum temperature in the range of 22-24^oC, mean temperature in the range of 25-29^oC, RH(I) in the range of 83%-92%, RH(II) in the range of 58-70% and wind speed in the range of 3-7.5 km/h were highly favourable for downy mildew disease development.

Maximum temperature 28-31^oC, maximum temperature 22-24.5^oC, mean temperature in the range of 25-27^oC, RH(I) in the range of 89-94%, RH(II) in the range of 66-70% and wind speed 2.5-7.5 km/h were highly favourable for the powdery mildew disease development.

Prediction models developed for anthracnose disease indicated that non-linear regression models predicted the disease incidence with higher efficiency than linear regression models. Preceding two weak weather gave better prediction than preceding one week weather data. Anthracnose occurred after foundation pruning predicted by 83% with non-linear regression compared to 79% obtained with linear regression equations with preceding two weeks weather. Prediction & validation results after foundation pruning clearly indicated that predicated and validated values were very close to the observed values.

Downy mildew occurred after foundation pruning was predicted by 82% with non-linear regression compared to 78% obtained with linear regression equation with preceding two weeks weather.

Where as Powdery mildew occurred after foundation pruning was predicted by 71% with non-linear compared 66% obtained with linear regression equations with preceding two weeks weather.

BANANA

At HRS, Kovvur BBrMV and BSV are the major viral diseases of banana. Rhizome rot particularly in Kovvur Bontha, Grand naine and Tella Chakkerakeli cultivars is the major bacterial disease.



None of the treatments was effective checking infection. All the treatments were on a par for pseudo-stem splitting. The ratings for vascular discolouration were non-significant and none of the plants remained uninfected.

Amrithapani, Kunnan, Valia Kyunnan, Musa balbisiana, Nendran, Njali Poovan, Ayaranka Rasthali, Mulbhog, Doodhsager, NRCB-03, Rasthali, Manjeera Nendran, KBS-02, and Manohar are highly susceptible.

Three sprays of Propiconazole (0.1%) effectively controlled the Sigatoka disease (42.49%) followed by Propiconazole (0.05%) with mineral oil (0.5%).

Four applications of Panchagavya at 0, 3, 5 and 7 MAP recorded least disease incidence (12.5%)

Incidence of flat limb, *pestalotiopsis* and *Phaeophleospora* leaf spots were observed. However, the incidence was so low which doesn't require control measures.

Minor incidence of *Colletotrichum* leaf spot and *Rhizopus* rot on male inflorescences were recorded.

PAPAYA

At HRS, Aswaraopet, among six different dates of planting namely August, October, December, February, April and June planting in August month recorded the lowest viral disease incidence (13.9%) compared to rest of the treatments in papaya (Red lady)



General Field view of experimental plot of papaya



August month DOP (Virus infested leaf)



August month DOP Bearing plant



August month DOP Virus effected fruits





TUBER CROPS

At VRS, Rajendranagar, high incidence of weevil (up to 32%), slight incidence of wilt disease (up to 8%) moderate incidence of *Cercospora* leaf spot disease (up to 12%) and slight incidence of mosaic diseases (up to 5%) were recorded on sweet potato. Leaf eating caterpillar and leaf miner attack was moderate in September on sweet potato. In Colocasia, incidence of leaf blight was first noticed during August ranging between 12-29%; the mosaic disease incidence 5-10% and aphids infestation is recorded up to 10%. *Amorphophallus* recorded 14% mosaic incidence; bacterial and fungal leaf spots up to 20% each and tuber rot 5% during the period under report.

In roving survey, in Peddapuram area cassava was infested with CMD up to 36% in different varieties and it was severe. Sweet potato showed up to 20% wilt disease; 0-5% *Cercospora* leaf blight; mosaic 0-3% and sweet potato weevil incidence of 0-20%.

In Colocasia incidence of leaf blight was ranging between 2-30%; mosaic incidence 0-5-10% and of aphids infestation up to 10% was recorded.

AMORPHOPHALLUS

At VRS, Rajendranagar, the experimental treatments showed differential responses in the IDM of the EFY. Increased and early sprouting of EFY was recorded in the plots of IDM package compared to farmers practice. Minimum incidence of Leaf blight (14.21%) and Mosaic (7.42%) was recorded in chemical control, however minimum incidence of collar rot was recorded in IDM Package, where as maximum yield of 34.4 t/ acre was recorded in chemical treatment followed by IDM package (31.3t).

COLOCASIA

At VRS, Rajendranagar, all the fifteen cultivars showed low to moderate blight infection in the field. The susceptible cultivar 'Telia' has recorded maximum PDI of *Phytophthora* leaf blight disease of 31.9% and 'Multakeshi recorded minimum PDI of 4.3 per cent and this was followed by RNCA-1 with 11.7 and maximum yield of 31.4t/ha

SWEET POTATO

At VRS, Rajendranagar, the results on the effect of barrier crops (Yam Bean and Marigold) indicated that planting of sweet potato with marigold as alternate planting (T5&T6)) is the best effective treatment to reduce the weevil infestation among the non-chemical treatments followed by yam bean planting, which have similar trend in reducing the weevil.

Against the sweet potato weevil nine treatments were tested among non chemical treatments *Beauveria bassiana* (Bio-power 1.5% WP) which recorded total marketable tuber yield of 19.6 t/ha with weevil infestation of 18 per cent followed by Neem cake (*Azadiracta indica*) which recorded total tuber yield of 18.9 t/ha with weevil infestation of 18.0%.

ACID LIME

At CRS, Tirupati, Bacterial canker and greasy spot in acid lime and twig blight and greasy spot in sweet orange were recorded at fortnightly interval was observed during survey. The results revealed that bacterial canker was high during rainy season (August to February) with a peak in November. The greasy spot was high during September to January with a peak in November.



In the integrated management of root rot, Mancozeb (0.25%) + *Pseudomonas fluorescense* (100 g/tree) + 2 kg neem cake /tree was found effective with 72.44% plants recovered and 2.04% trees dried.

Rangapurlime Florida (9.5%) and Rangapurlime Texas (11.31%) showed consistently low incidence compared to other eight strains of Rangapurlime. These two are budded and planted in the field for root stock seed purpose.

In management of citrus canker bacteria, Copper oxy chloride (30 g/10lit) + streptomycin sulphate (1g/10 lit) treatment reported less number of lesions on leaves and twigs when compared to neem seed kernel extract and untreated control during two consecutive years.

Identification and characterization of CTV isolates

The collected CTV isolates are indexed on acid lime and confirmed by DAC-ELISA. Extraction of RNA from acid lime bark using RNA extraction kit (Bangalore gene) was used for RT-PCR. For amplification, cMaster RT plus PCR system and cMaster RT kit (Eppendorf) were used. The primers used were.

Forward primer 5' AGA TCT ACC ATG GAC GAC GAA ACA AAG-3'.

Reverse primer 5' GAA TTC GCG GCC GCT CAA CGT GTG TTA AAT TTC C 3'

In RT-PCR assay the amplified product of 700 bp fragment was obtained in CTV infected sample. The RT-PCR product of coat protein region was purified, cloned and sequenced. The sequence data was deposited in the Genebank. The clone is being used for production of recombinant antibodies for CTV diagnosis.

Identification and Characterization of Citrus Yellow Mosaic Virus

Sap transmission of CYMV to different plant species viz., rice, sorghum, maize, canna and banana showed positive reaction in PCR after three weeks in rice, sorghum and maize and 2 months in case of canna and banana. PCR product from rice and sorghum and also one each from sweet orange, acid lime. Rangapurlime and pummello pink was purified and sequenced (MWG; Bangalore). New set of primers and designed based on sequence data of 6 isolates. These are being used for diagnosis by PCR.

Mealy bug, *Planococcus citri* was able to transmit the mosaic disease from sweet orange to sweet orange (46.7%). The symptomatic plants were confirmed by ELISA and PCR test. Multiplex PCR system was developed for simultaneous detection of citrus greening (HLB) and citrus yellow mosaic virus (CYMV). This test is very useful in indexing and certification of sathgudi mother trees and virus free plating material.

Velaga, Calamandin, citron, Chinnotto sour orange, Lisbon lemon, Australian sour orange and Emmikaipoli were found resistant under artificial inoculation by HLB containing bark patch grafting after 11 months of inoculation. Maximum of 68.5% transmission was observed in *Citrus hystrix*. All the individual inoculated plants were checked by PCR test.

About 800 trees of Sathgudi are indexed for CYMV, HLB and CTV. Supplied about 1.12 lakh virus free Sathgudi buds for large seed production of Sathgudi budlings in the station and also to the other research stations.





SPICES

TURMERIC

At TRS, Kammarapally, there was significant effect of chemicals on disease index of both leaf spot and leaf blotch and yield and non significant on germination. Rhizomes treated with Carbendazim +Mancozeb (0.1%) + foliar spray of Carbendazim +Mancozeb (0.1%) on 45 and 90 DAP recorded the highest germination (92.51 %) which was followed by rhizomes treated with propiconazole (0.1%) + foliar spray of propiconazole (0.1%) on 45 and 90 DAP (90.83) and lowest rhizome germination was observed in control (86.66).

Lowest leaf spot percent disease index was recorded in rhizomes treated with Propiconazole (0.1%) + foliar spray of Propiconazole (0.1%) on 45 and 90 DAP (16.46) which was followed by foliar spray of Propiconazole (0.1%) on 45 and 90 DAP (17.9) both are non significant with each other. Similarly in case of leaf blotch, the lowest percent disease index was recorded in rhizomes treated with Carbendazim + Mancozeb (0.1%) + foliar spray of Carbendazim +Mancozeb (0.1%) on 45 and 90 DAP (15.56) which was followed by foliar spray of Carbendazim +Mancozeb (0.1%) on 45 and 90 DAP (16.73)

It is evident that higher fresh rhizome yield was recorded in rhizomes treated with Carbendazim +Mancozeb (0.1%) + foliar spray of Carbendazim +Mancozeb (0.1%) on 45 and 90 DAP (17.53 t/ha) which was followed by Propiconazole (0.1%) + foliar spray of Propiconazole (0.1%) on 45 and 90 DAP (17.50 t/ha) and foliar spray of Carbendazim +Mancozeb (0.1%) on 45 and 90 DAP with fresh rhizome yield (17.06 t/ha) and lowest yield was recorded in control (14.13t /ha).

Survey conducted in four mandals revealed the incidence of Colletotrichum leaf spot ranged from 9.7 to 13.7 %, Tathrina leaf blotch 5.5 % to 15.8 % and Rhizome rot 7 to 12 % irrespective of the varieties.

CHILLIES

At HRS, Lam, in chillies fruit rot disease incidence was recorded on standard week basis and regression analysis was done. From the regression equation, it was found that the independent variables, maximum temperature, relative humidity (FN) and rainfall were positively correlated with disease incidence. Remaining independent variables i.e. minimum temperature and relative humidity (AN) were negatively correlated with disease incidence. Further the coefficient of multiple determination R value was equal to 0.622 which implies that 62.2% of variation in the development of fruit rot disease was explained by the five independent variables.

Among the fungicides tested against anthracnose disease, spraying Penconazole @ 0.1% propiconazole @ 1 ml/lt, Difenconazole @ 0.06%, Azoxystrobin @ 0.03%, Copper hydroxide @ 0.2%, Mancozeb @ 0.2%, were significantly superior to control.



VEGETABLES

TOMATO

At VRS, Rajendranagar, all the entries exhibited leafcurl virus disease incidence of above 5.0 per cent. Among the entries tested two entries i.e. 09/TOLCVRES – 3 and 09/TOLCVRES – 14 exhibited lowest incidence of 5.7 and 4.4 per cent respectively. Maximum incidence was recorded in the entry 09/TOLCVRES – 11 (20.0 %). The resistant check H –24 recorded 12.4 per cent incidence and the susceptible check Punjab chuhara exhibited 45.0 per cent incidence.

The entry 09/TOLCVRES – 2 recorded maximum yield of 322.22 q/ha followed by 09/TOLCVRES – 13 (278.7 q/ha). The susceptible check Punjab Chuhara recorded 90.7 q/ha yield.

The blight disease in tomato incidence ranged from 15.3 to 22.7 and there was no significant difference among most of the treatments. However, in control plot, the disease incidence was 26.7 PDI.

TOSPO virus disease incidence in tomato ranged from 6.0 to 7.6. In control plot, the disease incidence was 11.3.

At HRS, Lam, in tomato 15-19% of peanut bud necrosis virus, 10-17% of tomato leaf curl virus, 4 -10% of early blight were recorded. In bhendi 4-15% of yellow vein mosaic virus was recorded. In brinjal bacterial fruit rot (<5), little leaf (6-7%), bacterial wilt(4-5%), brinjal mosaic virus (6-10%) were recorded. In ridge gourd, ridgegourd mosaic virus (20-25%) was recorded. In watermelon bud necrosis (3-20%) was recorded.

OKRA

At VRS, Rajendranagar, among the entries tested, 09 / OK YVM Res-2, 09 / OK YVM Res-3 and 09 / OK YVM Res-4 exhibited disease incidence of below 5.0 per cent. Whereas 09 / OK YVM Res-5 recorded higher incidence of 15.6 per cent. The resistant checks VRO-6 (7.5), Arka Anamika (7.8) and P – 7 (6.8) exhibited incidence of below 10 per cent. The susceptible check Parbhani Kranti recorded 22.8 per cent disease incidence. However, the crop was affected due to the continuous rains received during the crop growth period which resulted in poor crop growth. Hence, the yield recorded was very poor.

At VRS, Rajendranagar, among the entries tested only one entry viz., KS- 442 exhibited disease incidence of below 5.0 per cent. Three entries VRO-21 (12.7), VRO-22 (9.3) and PB-31-1 (14.6) exhibited disease incidence of below 15.0 per cent. Whereas US 7109 exhibited 21.9 per cent incidence. The resistant checks VRO-6 (7.1), Arka Anamika (8.6) exhibited incidence of below 15 per cent. The susceptible check Parbhani kranti recorded 24.6 per cent disease incidence. However, the crop was affected due to the continuous rains received during the crop growth period which resulted in poor crop growth. Hence, the yield recorded was very poor.

At HRS, Lam, in okra IET, among 4 hybrids screened against YVMV with 3 susceptible checks, 09/OKYVRES-2 recorded lowest incidence (27.98%) with 114.45q/ha yield followed by 09/OKYVRES-5(35.00%) with 107.85q/ha yield which were significantly superior to susceptible checks.





In okra AVTII, out of 4 entries tested US-7109 recorded lowest YVMV incidence of 19.67% with 130.80q/ha yield followed by VRO-6 with 31.33% incidence, and 100.04q/ha yield.

Epidemiology of important diseases of commercially important vegetable crops

At VRS, Rajendranagar, during the period of crop growth max temperature ranged from 26.5 to 37.0 °C and minimum temperature ranged from 7.7 to 21.9 °C. Where as RH I (morning) ranged from 75 to 96 and RH II (evening) ranged from 22 to 73. There was no rainfall received on the days of recording data, but, there was a total rainfall of only 14.4 mm during the entire period of crop growth. The disease appeared after one and half month after planting and it reached to 45.6 PDI by the end of the season.

$$Y = \hat{a} + \hat{a}_1 X_1 + \hat{a}_2 X_2 + \hat{a}_3 X_3 + \hat{a}_4 X_4$$

$$Y = -35.0996 + 4.1902 X_1 - 0.6170 X_2 - 1.0194 X_3 + 0.4501 X_4$$

R^2 (Coefficient of Determination) = 0.8412

From the above equation it was found that the independent variable maximum temperature was positively correlated and relative humidity (morning) was negatively correlated with the disease incidence. However, both the variables contributed significantly for variation in the development of early blight disease of tomato. Also, minimum temperature was negatively correlated with the disease incidence.

Further, the coefficient of multiple determination R^2 value was equal to 0.8412 which implies that 84.12 per cent of variation in the development of early blight disease was explained by the four independent variables maximum temperature, minimum temperature, relative humidity (morning) - I and relative humidity (evening) -II. R^2 value was found to be significant.

At VRS, Rajendranagar, the incidence of early blight and TSWV was moderate and the incidence of TLCV, mosaic and wilt was low in tomato. In chilli crop, the incidence of wilt, leaf spots and powdery mildew diseases was moderate. But the incidence of die back and fruit rot was low. In gourds, the incidence of powdery mildew, downy mildew, wilt and mosaic diseases was moderate. In okra crop also, the incidence of YVMV and powdery mildew diseases was moderate. In brinjal crop, the incidence of wilt and little leaf diseases was also moderate. The incidence of mosaic was moderate in beans and pumpkin crops. In *Coccinia* also low incidence of powdery mildew disease was recorded. In *rabi* season crops Tomato, chilli, brinjal, beans, onion and *coccinia* the incidence of different diseases was moderate.

FLOWERS

CHRYSANTHEMUM

At HRS, Anantharajupet, among the fungicides tested for management of leaf blight in chrysanthemum showed that, Tebuconazole recorded minimum incidence (6.58%) of *Alternaria* blight followed by Iprodion (7.92%). The plants treated with Azoxystrobin and Propiconazole recorded 9.12 and 9.35 percent incidence, respectively. In control plot 30.12 percent incidence was recorded. The economic yield in terms of flower yield was also high in Tebuconazole treated plots.



(51.45 flowers/plant, 115.65g. flower yield/plant, 1.92g. average flower weight and 11.56t/ha flower yield).

Among the 300 soil samples collected from different soil types of Kadapa and Chittoor districts for isolation of native *Trichoderma* spp on TSM medium 25 isolates were found effective in *in-vitro* against *Sclerotium rolfsii*. The percentage inhibition ranged from 28-67 in dual culture technique studies on 7th day of observation whereas, in poison food technique studies, the growth inhibition ranged from 67 to 88% in 10⁻³ dilution on 7th day of observation.



The studies on cultural characteristics of all the native *Trichoderma* isolates for mycelia growth and spore count revealed that, all the isolates showed maximum mycelial growth on 90mm TSM cultured petri plates except 4 isolates (Tr6, Tr8, Tr11 and Tr15) on 5th day of observation and the studies in relation to the spore count showed that, it ranged from 1x 10⁷ (Tr7 isolate) to 28.6 x10⁷ (Tr 10 isolate) spores/ml.





E. POST HARVEST TECHNOLOGY

FLOWERS

GLADIOLUS

At ARI, Rajendranagar, wet storage of cut spikes of gladiolus upto 3 days showed better performance, beyond which the vase life and other floral parameters declined. Regarding stage of harvest, the stage -1 showed significantly higher values of vase life and days for basal floret to open, floret size and longevity of opened floret.

The pulsing of gladiolus spikes with chemicals Sucrose (20%) + $\text{Al}_2(\text{SO}_4)_3 \cdot 16 \text{H}_2\text{O}$, 300 ppm and Sucrose (20%) + $\text{Al}_2(\text{SO}_4)_3 \cdot 16 \text{H}_2\text{O}$, 300 ppm + GA3, 50 ppm as pre storage treatment improved post harvest parameters.

The post harvest studies indicated that among 5 different varieties and harvest stages, no difference was noticed. The increase in storage duration gradually decreases post harvest quality.

CHRYSANTHEMUM

At ARI, Rajendranagar, the wet storage of chrysanthemum stems resulted in increased vase life and flower diameter upto a storage period of 3 days. BAP 50 ppm registered higher values of vase life and max. flower diameter.

The vase life and flower diameter of cut chrysanthemums can be increased by keeping in a holding solution of sucrose 2% + $\text{Al}_2(\text{SO}_4)_3 \cdot 16 \text{H}_2\text{O}$ 300 ppm

TUBEROSE

At ARI, Rajendranagar the vase life and floret diameter of cut tuberose stems can be increased by keeping in sucrose 5% + $\text{Al}_2(\text{SO}_4)_3 \cdot 16 \text{H}_2\text{O}$ 300ppm.

Refrigerated storage of cut stems of tuberose had significantly reduced the vase life.

CARNATIONS

At ARI, Rajendranagar, the treatments (Sucrose (10%) + STS + $\text{Al}_2(\text{SO}_4)_3 \cdot 16 \text{H}_2\text{O}$, + Kinetin 25 ppm) and (Sucrose (10%) + STS + $\text{Al}_2(\text{SO}_4)_3 \cdot 16 \text{H}_2\text{O}$, + BAP, 25 ppm) enhanced vase life and flower diameter. The pulsing solutions had no effect on total water absorbed per stem and no phototoxic symptoms were observed.

The vase life of cut carnation flowers can be increased by wrapping in 100 gauge polypropylene sleeves.





The holding solutions $A1_2(SO_4)_3$, $16 H_2O$, 300 ppm + BA recorded max. values for vase life. No significant difference were noticed in other parameters.

Research findings in Soil Science

At GRS, Rajendranagar, petiole analysis at bud differentiation stage revealed that in majority of the vineyards nutritional status was optimum with respect to nitrogen and phosphorus, and high in case of potassium. Hidden hunger of nitrogen was recorded in 31% and of phosphorus in 6% vineyards raised on Dogridge rootstock. Whereas hidden hunger of nitrogen was recorded in 9% and potassium in 8 % of vineyards raised on own roots. High in potassium was observed in 19% grafted and in 32% own rooted vineyards.

Irrigation water analysis indicated that the water was safe with regards to pH. The EC of water samples ranged between 0.5 and 2.2 dS/m, while the chlorides were more than 4 meq/lit in 60% samples. The maximum sodium content recorded was 10 meq/lit which is within the safe limit. SAR was also within the safe limits. The RSC was safe in majority of the samples.

KR white, Red globe, 2A clone recorded significantly high N, where as KR white, 2A clone, Thompson seedless, Crimpson seedless and Merbean seedless recorded significantly high P.

Rizamat, Merbeen seedless, KR white and 2 A clone recorded significantly high K, while Muscat of Hamberg and Red globe recorded significantly high Ca when compared to other table and raisin varieties. There was no significant difference among varieties in Na content.

Cabernet Sauvignon, Zinfandel, Bangalore Blue, Gulabi X Bangalore Blue and Chenin Blanc recorded significantly high N. Bangalore Blue and Merlot recorded significantly high P. Athens recorded significantly high K. Pusa Navrang, Athens, Bangalore Blue, Merlot, Zinfandel and Cabernet Sanvignon recorded significantly high Ca. Significantly high Na was recorded in Zinfandel when compared to other juice and wine varieties.

Significantly high N was recorded with scion grafted on SO4 and Dogridge root stocks. Significantly high P was recorded vines raised on own roots and 1103 P rootstock. Significantly high K was recorded with all rootstocks studied. While significantly high Ca was recorded with SO4 rootstock and own root. Significantly high Na was recorded with ownroot.

Among varieties Thompson Seedless, Kishmish Chorni recorded high N, K & Na, while Thompson Seedless recorded high P.





V. EXTENSION

A. APHU FIRST ZREAC MEETINGS



ZREAC Meeting of Coastal Zone at Tadepalligudem held on 23-4-2010



ZREAC Meeting of Rayalaseema Zone at Tirupati held on 28-04-2010



ZREAC Meeting of Telangana Zone at Rajendranagar held on 03-05-2010



Diagnostic field visit by Scientists of HRS, Anantharajupet to muskmelon fields along with Officers of Department of Horticulture.

B. DIAGNOSTIC VISITS

Name of the Scientist	Place of Diagnostic visit	Date of visit	Crop
Dr.B.Srinivasulu, Senior Scientist (H) and Dr. D. Srinivasa Reddy Scientist (Ento.)	Gangarajapuram, Rly. Kodur (M), Kadapa Dist	15.07.2009	Watermelon
Dr. D. Srinivasa Reddy Scientist (Ento.)	Venkatareddy palli, Rly. Kodur (M), Kadapa Dist.	27.07.2009	Brinjal
Dr. D. Srinivasa Reddy Scientist (Ento.)	T.kammappalli, Pullampeta (M), Kadapa Dist.	05.08.2009	Papaya
Dr.B.Srinivasulu, Senior Scientist(H)	Kurnool	6-10-2009	Turmeric
Dr.B.Srinivasulu, Senior Scientist(H)	Kadapa	9-10-2010	Chilli, Onion and Papaya.





Name of the Scientist	Place of Diagnostic visit	Date of visit	Crop
Dr. D. Srinivasa Reddy Scientist (Ento.)	Raghavarajapuram, Rly. Kodur (M), Kadapa Dist.	21.10.2009	Chilli
Dr. D. Srinivasa Reddy, Scientist (Ento.)	Mukkavarapalli, Obulavarapalli (M), Kadapa Dist.	18.11.2009	Teak
Dr. D. Srinivasa Reddy, Scientist (Ento.)	Y. kota, Obulavarapalli (M), Kadapa Dist.	07.12.2009	Banana
Dr. D. Srinivasa Reddy, Scientist (Ento.)	Chitvel, Kadapa Dist.	10-12-2009	Sweet orange
Dr. D. Srinivasa Reddy, Scientist (Ento.)	Mukkavaripalli, Kadapa Dist.	22-12-2009	Papaya, Jack
Dr.B.Srinivasulu, Senior Scientist(H)	Jettivaripalli (V) Chitvel (M) Kadapa Dist.	30-12-2009	Mango
Dr. D. Srinivasa Reddy, Scientist (Ento.)	Chinnaorampadu , Obulavarapalli, Kadapa Dist.	08.01.2010	Betelvine
Dr. D. Srinivasa Reddy, Scientist (Ento.)	Venkata Reddypalli Rly. Kodur (M), Kadapa Dist.	15.01.2010	Papaya
Dr.B.Srinivasulu, Senior Scientist(H)	Vaddemnu, Kadapa Dist.	29-1-2010	Chilli
Dr.B.Srinivasulu, Senior Scientist(H)	Kurnool	30-1-2010 & 31-1-2010	Onion
Dr. D. Srinivasa Reddy, Scientist (Ento.)	Kadapa	9-2-2010	Mango
Dr.B.Srinivasulu, Senior Scientist(H)	B.Kammapalli, Rly Kodur,Kadapa	27-2-2010	Mango
Dr.B.Srinivasulu, Senior Scientist(H)	Palempalli, Chennur(M)Kadapa Dist.	29-3-2010	Muskmelon
Dr. D. Srinivasa Reddy, Scientist (Ento.)	Kadapa	19-3-2010	Coconut
Dr. D. Srinivasa Reddy, Scientist (Ento.)	Kadapa	23-4-2010	Mango
Dr. D. Srinivasa Reddy, Scientist (Ento.)	Kadapa	30-4-2010	Onion
Dr. D. Srinivasa Reddy, Scientist (Ento.)	Kadapa	1-4-2010	Crossandra
G. Srinivasa rao, Scientist (SSAC),	Kadapa	1-4-2010	Betelvine
Dr. D. Srinivasa ReddyScientist (Ento.)	Kadapa	10-5-2010	Onion
Dr. D. Srinivasa ReddyScientist (Ento.)	Kadapa	18-5-2010	Mango
Dr.B.Srinivasulu, Senior scientist(H)	Kadapa	2-6-2010	Papaya
Sri M.G. BalahussainiScientist (H)	Chitoor	19-6-2010	Mango
Dr. D. Srinivasa ReddyScientist (Ento.)	Kadapa	17-6-2010	Mango





Horticultural Research Station, Pandirimamidi

Name of the Scientist	Place of Diagnostic visit	Date of visit	Crop
Dr.B.V.K.Bhagavan, Senior Scientist (Hort)	Rampachodavaram	26.8.2009 & 28.8.2009	Rubber Plantations
Dr.B.V.K.Bhagavan, Senior Scientist (Hort)	Parvathipuram	15.9.2009 to 16.9.2009	Rubber Plantations
Sri M.Satti Raju, Scientist (Hort)	Tetagunta & Rauthulapadi	15.1.2010	Oil palm & Cashew
Sri M.Satti Raju, Scientist (Hort)	Tetagunta, Rajahmundry, Kalavacherla	4.3.2010	Horticultural Crop Nurseries

Grape Research Station, Rajendranagar

Dr. D. Vijaya, Scientist (Soil Science) has visited the dry rootsot affected orchards of sweet orange in Nalgonda district on 24-8-2009.

Vegetable Research Station, Rajendranagar

Scientists from Vegetable Research Station, Rajendranagar Visited flood affected areas of Mahaboob Nagar district on 6-10-2010 in two teams along with officials of Department of Horticulture and assessed the damage and suggested suitable remedial measures.

Dr. M. Vijaya, Principal Scientist (PP) has visited Vepagunta village, Khammam district and observed the mango orchards drying due to various reasons like pests and diseases and soil health problems and suggested suitable remedial measures to rejuvenate the orchards on 12.11.2009.

Dr. B.K.M.Lakshmi, Scientist (PP) has surveyed Mango orchards in Krishna District along with Dr M.K.Sukla, Principal Scientist (Ento) CISH, Lucknow and Officers from Department of Horticulture and Agriculture and suggested mango-protection to farmers on 3-2-2009 & 4-2-2009.

Dr. B.K.M.Lakshmi, Scientist (PP) has surveyed Mango orchards in Krishna District along with Export certification committee and Officers from Department of Horticulture and Agriculture on 6-4-2009.

Horticultural Research Station, Aswaraopet

Sri M.Ravindra Babu, Scientist (H) along with Department of Horticulture and Agriculture officials visited the Bhendi fields at Sulanagar village of Takulapally Mandal, Khammam District and assessed the reasons for poor flowering and fruiting and suggested remedial methods on 10.07.2010.

Horticultural Research Station, Mallepally

K. Kaladhar Babu, Scientist (Hort) has made four diagnostic visits in various Acid lime, Sweet orange, Mango in Khammam, Mahaboobnagar and Nalgonda dist.





Mango Research Station, Nuzvid

A team of APHU scientists from MRS, Nuzvid, FRS Sangareddy, ARI, Rajendranagar and HRS, Mallepally visited mango gardens in Khammam district and advised management practices to farmers on 13.11.09.

Dr.N.B.V.Chalapathirao, Sr. Scientist (Ento) visited diseased mango gardens in Nandigama village, Krishna district on 24.11.2009.

Dr.N.B.V.Chalapathirao, Sr. Scientist (Ento) visited diseased mango gardens in Agiripalli and Gopavaram villages, Krishna district on 2.5.2009.

Dr.N.B.V.Chalapathirao, Sr. Scientist (Ento) and Smt. D.Aparna, Scientist (Hort.) visited mango gardens in Veeravalli, Krishna district on 10.2.2010 and advised fertilizer and pest management practices to farmers.

Dr.N.B.V.Chalapathirao, Sr. Scientist (Ento) and Smt. D.Aparna, Scientist (Hort.) visited mango gardens in Vissannapeta, Putrela, Narasimharaopalem, Narsapuram and Chanumanda villages, Krishna district on 12.3.2010 and advised fertilizer and pest management practices to farmers.

Horticultural Research Station, Lam

Dr.C.Venkata Ramana attended a diagnostic survey on chilli crop of Bobbepalli village of Marturu mandal of Prakasam district regarding severe infestation of viral diseases of chilli organized by IndoAmerican Hybrid Seeds on 7.12.09.

Dr.C.Venkata Ramana attended a diagnostic survey on chilli crop of Lakshmipuram and Rangapuram village of Mogullapalli mandal of Warangal district regarding severe infestation of Chilli Midge on 21.12.09.

Dr.K.Uma Jyothi and Dr.S.Surya Kumari attended a diagnostic survey on chilli crop in Mullapadu village of Penduganchiprolu mandal of Krishna district regarding the purity of chilli seeds of ASR Seeds on 31-4-09.

Dr. C.Venkata Ramana and Dr. S. Surya Kumari, Senior Scientist attended a diagnostic survey on chilli crop of Chintalapalem village of Narsaraopet mandal regarding poor fruit set and failure of chilli variety 009 (Bhagawan) of Tulasi Seeds Pvt. as per the instructions of the Director of Research, APHU, Tadepalligudem on 18.03.10

Dr.P.Venkat Reddy Principal Scientist(Hort) visited Bhanugold chilli variety at Garikapadu village of Tadikonda mandal on 18.03.10.

Horticultural Research Station, Vijayarai

Dr. V. Vijaya Bhaskar, Senior Scientist (Hort.) has visited several sick horticultural farms and suggested the remedial measures to correct the deficiencies and to control pests and diseases on the crops.





Participation in Disaster Management Programmes and other Programmes sponsored by Department of Agriculture & Horticulture

Date	Name of the area covered	Problem	Scientist attended
8-10-09	Tullur Mandal of Guntur district and Bhadrirajupalemmandal of Krishna district	Flood enumeration and measures to take up for revival of the crop	Dr.P.Venakata Reddy Principal Scientist (Hort.), HRS, Lam
10-10-09	Tadepalli and Tullur mandals of Guntur	Flood enumeration and measures to take up for revival of the crop	Dr.P.Venakata Reddy Principal Scientist (Hort.), HRS, Lam
11-10-09	Nutakki, Ramachandrapuram, Pedavadlapudi, Revendrapadu villages of Nutakki mandal of Guntur	Flood enumeration and measures to take up for revival of the crop	Dr.P.Venakata Reddy Principal Scientist (Hort.), HRS, Lam
12-10-09	Amaravathi, Krosuru & Tulluru mandals of Guntur district	Flood enumeration and measures to take up for revival of the crop	Dr.P.Venakata Reddy Principal Scientist (Hort.), HRS, Lam
12.10.09	Kanchikacherla, Chandarlapadu and Jaggaiahpet mandals of Krishna district	Flood enumeration and measures to take up for revival of the crop	Dr.C.Venakata Ramana Scientist (Hort.), HRS, Lam
13.10.09	Kasarabad, Pokkunuru, Kodavatikollu, Ustapalli, Punnavalli, Vibharintalapadu, Gudimetla of Chandarlapadumandal of Krishna district	Flood enumeration and measures to take up for revival of the crop	Dr.C.Venakata Ramana Scientist (Hort.), HRS, Lam
14.10.09	Chevitikallu, Gani Atkur, Kunikinapadu, Moguluru, Munnaluru, Paritala of Kunchikacherla mandal of Krishna dist.	Flood enumeration and measures to take up for revival of the crop	Dr.C.Venakata Ramana Scientist (Hort.), HRS, Lam
15.10.09	Inapur of Pamiddimukalla Mandal of Krishna district	Flood enumeration and measures to take up for revival of the crop	Dr.C.Venakata Ramana Scientist (Hort.), HRS, Lam

Dr. B. Srinivasulu, Senior Scientist (H) and Dr. D.Srinivasa Reddy, Scientist (Ento), HRS, Anantharajupet visited flood affected areas from 6-9th October, 2009 in Kurnool and Kadapa districts to suggest farmers suitable remedial measures to safeguard existing horticultural crops.



Scientists from HRS, Anantharajupet suggesting remedial measures to farmers in flood affected areas of Kurnool & Kadapa districts.



C. TRAINING PROGRAMMES CONDUCTED

Horticultural Research Station, Anantharajupet

Smt. C. Madhumathi Scientist (H), attended training programme on “Vesavilo Kuragayala sagu” at SHM training Institute, Utukur, Kadapa as resource person on 29-1-2010.

Dr.B.Srinivasulu, Senior Scientist (H) attended T&V work shop at ARS, Utukur on 29-1-2010.

Dr. D. Srinivasa Reddy, Scientist (Ento) participated in Hands on Training programme on Microbial Agents of Major insect pests and diseases of crops organized by DOR, Rajendranagar, Hyderabad from February, 16-23, 2010.

Dr.B.Srinivasulu, Senior Scientist (H) attended farmers training programme on Chilli Production Technology, at Vaddemanu, Kasinayana (M) on 29-1-2010 organized by Department of Horticulture.

Dr. B. Srinivasulu, Senior Scientist (H) attended 2nd REC meeting at Teachers Home, Bhoiguda on 9-2-2010.

Dr. B. Srinivasulu, Senior Scientist (H) attended Awareness programme on Mango cultivation at Chittoor on 17-2-2010 organized by ATMA Federation of Farmers Association and Department of Horticulture, Chittoor.

Dr. B. Srinivasulu, Senior Scientist (H) attended Farmers Training programme on Banana & Papaya production technology at NHTI, Utukur on 5-3-2010.

Dr. B. Srinivasulu, Senior scientist attended farmers training programme on Production Technology of Minor fruits on 22-6-2010 at NHTI, Utukur.



Scientists of HRS, Anantharajupet interacting with mango growers and Austrian partners at Railway Kodur, Kadapa district.

Turmeric Research Station, Kammarpally

K.Uma Maheswari, Scientist (Hort.) participated in the Training programme organized by the Spice board (Warangal) to the farmers on Diseases Turmeric & their Management Nizamabad on 04.03.10.

Horticultural Research Station, Pandirimamidi

Sri M.Satti Raju, Scientist (Hort) participated in training to the farmers on cashew and oilpalm at Boddavaram village on 26.1.2010.





Horticultural Research Station, Peddapuram

Date	Subject	Organized by	Venue
14.2.2009	Quality seed material selection and its storage in cassava	Hort. Department	Jaggampet Kottur & J. Thimmapuram
17.11.2009	Cassava production technology added value addition	Agril. Department	FTC, Peddapuram
18.11.2009	Cassava production technology added value addition	Agril. Department	FTC, Peddapuram
24.11.2009	Cassava production technology added value addition	Agril. Department	FTC, Peddapuram
1.12.2009	Cassava production technology added value addition	Agril. Department	FTC, Peddapuram
8.12.2009	Cassava production technology added value addition	Agril. Department	FTC, Peddapuram

Vegetable Research Station, Rajendranagar

Date	Topic	Target group	Institution organized
Dr.M.Vijaya, Principal Scientist (Plant Path)			
04-12-2009	Integrated Pest and Disease Management in Vegetable crops	Medak and Ranga Reddy farmers districts.	Horticultural Training Institute
Dr.R.V.S.K.Reddy, Principal Scientist (Hort.)			
3-8-2009	Integrated crop management	Agril. Officers of A.P., Tamil Nadu, Kerala and Orissa	EEL, Hyderabad
21-8-2009	Vegetable cultivation	Farmers of Ranga Reddy dist.	AP Farmers Federation
30-10-2009	Trellising in Vegetable cultivation	Farmers of Ranga Reddy and Medak districts	Dept of Horticulture, AP
3-11-2009	Vegetable Cultivation	-do-	HTI, Dept of Horticulture, AP
10-11-2009	Vegetable cultivation	-do-	-do-
19-11-2009	Vegetable cultivation	Aadarsha Rytu, Medak District	Dept of Horticulture, Medak
24-11-2009	Protected cultivation of vegetables	Agril. Officers & Horticultural Officers	MANAGE, Hyderabad
21-12-2009	Spices and Plantation Crops	Horticultural Officers of AP.	HTI, Dept of Horticulture, AP
8-2-2010	Water Management in Vegetables	Aadarsha Rytu, Mahaboobnagar District	RARS, Palem
25-3-2010	Vegetable cultivation	Farmers Nizamabad District	NHRDF Kurnool





Date	Topic	Target group	Institution organized
Dr.K.Dhanumjya Rao, Senior Scientist (Hort.)			
12-8-2009	Protection cultivation of vegetable crops	Horticultural officers	RHTI, Hyd
25-8-2009	Packages of practices in Vegetable Crops	Medak Farmers	RHTI, Hyd
10-9-2009	Protected cultivation of Vegetable crops	Farmers, at Rangareddy Dist	
Dr. K. Sireesha, Scientist (Ento.)			
11-3-2010	Explained about the Research going on at this station	Tenali division farmers, under ATMA programme	Dept of Agriculture
Smt. Veena joshi, Scientist (Hort)			
26-8-09	Package of practices in Vegetable crops	Medak farmers	Horticultural Training Institute, Red Hills, Hyd
1-9-2009	On precision farming in Vegetable crops	Rangareddy farmers	HTI, Red hills.
10-9-09	Package of practices in different Vegetable crops	Medak district farmers	HTI, Red hills
10-11-09	Organic farming in Horticulture	Rangareddy & Medak farmers	HTI, Red Hills
28-1-2010	Production Technology of Vegetable Crops for farmers	Rangareddy & Medak farmers	Horticulture Expo, 2010, Necklace Road, Hyd.
Dr. B.K. M.Lakshmi, Scientist (PP)			
25-3-2010	Pest & Disease management in Vegetable crops	Farmers Nizamabad District	NHRDF Kurnool

Grape Research Station, Rajendranagar

Dr. G. Ram Reddy, Scientist (Plant Pathology) has participated training programme on “Sanitary and Phyto sanitary measures and Risk Analysis to promote Agriculture trade in India from 27th July to 30th July 2009.

Dr. A. Ranga Reddy, Principal Scientist imparted training programme to Grape growers of Anathapur dist., farmers on 22-1-2010 at Regional Horticulture Training Institute, Ananthapur.

Horticultural Research Station, Aswaraopet

Sri M. Ravindra Babu, Scientist (H), Horticultural Research Station, Aswaraopet has attended training programme on “Microbial Agents of Major Insect Pests and Diseases of Crops” at Directorate of Oil seeds Research, Rajendranagar, Hyderabad . from 8th to 15th February, 2010.

Sri. M.Ravindra Babu, Scientist (H) Attended Brain storming session on Mango at Zilla Parishad Hall, Sangareddy organized by Fruit Research Station, Sangareddy on 06.05.2010.





Sri. M.Ravindra Babu, Scientist (H) has attended Seven Farmers' Training Programmes as Resource Person organized by Department of Horticulture in Khammam District.

Horticultural Research Station, Mallepally

Conducted training to Adarsha Rythulu of Peddaadiserlapalli and Peddavura Mandals of Nalgonda district at HRS, Mallepally on 15.12.2009.

Mr. B. Ramesh Babu, Scientist (Hort) imparted training to women farmers at HRS, Mallepally on 03-02-2010.

Mango Research Station, Nuzvid

Dr.N.B.V.Chalapathi Rao, Sr.Scientist (Ento) MRS, Nuzvid conducted T&V meeting at Krishna Industrial & Agricultural Exhibition Society, Vijayawada organized by SRS, Vuyyuru & Dept of Agriculture on 20.2.10

Dr.N.B.V.Chalapathi Rao, Sr.Scientist (Ento) MRS, Nuzvid conducted Agri Conclave 2010 - Sustainable Agriculture: Need of Indian Economy at Krishna Industrial & Agricultural Exhibition Society, Vijayawada on 20.2.10

Dr. N.B.V.Chalapathi Rao, Sr.Scientist (Ento) participated as a resource person on officers training on mango and oil seeds at ADA's office, Nuzvid on 11.3.10

D. Aparna, Scientist (Hort), MRS, Nuzvid conducted T&V meeting of Krishna Dt., organized by SRS, Vuyyuru, ANGRAU & Dept of Agriculture at A.O. Association Hall at Vijayawada on 26.6.10

D. TRAINING PROGRAMMES PARTICIPATED

Horticultural Research Station, Lam

Name of the Training Programme	Venue	Duration	Scientist attended
"Development-Winning Research Proposals in Agricultural Research"	NAARAM, Rajendranagar, Hyderabad	Six days 18-24th June 09	Dr.C.Venkata Ramana Scientist (Hort.), HRS, Lam
Training programme on administrative & financial procedures	Boiguda Guest House of ANGRAU, Hyderabad	Two days 28 & 29th May, 2009	Dr.P.Venakta Reddy Principal Scientist (Hort.) Dr.K.Uma Jyothi Senior Scientist (Hort.) Dr.S.Surya Kumari, Senior Scientist (Hort) HRS, Lam
IT-based Decision Support Systems for Multimedia Content Development	NAARM, Hyderabad	17-27th November, 2009	Sri. K. Giridhar, Scientist (H), HRS, Lam





Dates	Organization	Programmes	Topic of Lecture	Scientist attended
21-3-09	ANGRAU	Zonal Research and Extension Advisory Council (ZREAC) meeting of Krishna zone	Production technology of chilli.	Dr. C.Venakata Ramana Scientist HRS, Lam
27-4-09	Dept. of Agriculture and Horticulture, Guntur	Saaguku Samayatham programme 2009 in Kukkapallivaripalem, Veluru, Manukondavaripalem Gramapanchayats of Chilakaluripet mandal	Chilli and other Horticultural crops management practices	Dr. C.Venakata Ramana Scientist HRS, Lam
28-4-09	Dept. of Agriculture and Horticulture, Guntur	Saaguku Samayatham programme 2009 in Gorijavolu Gramapanchayat of Nadendla mandal	Chilli and other Horticultural crops management practices	Dr. C.Venakata Ramana Scientist HRS, Lam
29-4-09	Dept. of Agriculture and Horticulture, Guntur	Saaguku Samayatham programme 2009 in Pamidimaru, Kondakavuru and Yakkavaripalem Gramapanchayats of Narasaraopet mandal	Chilli and other Horticultural crops management practices	Dr. C.Venakata Ramana Scientist HRS, Lam
29-4-09	Dept. of Agriculture	Saaguku Samayatham	INM, IMP & IWM in Horticultural Crops & Chillies.	Dr. S.Surya Kumari Senior Scientist HRS, Lam
30-4-09	Dept. of Agriculture and Horticulture, Guntur	Saaguku Samayatham programme 2009 in Ganapavaram Gramapanchayat of Nadendla mandal	Chilli and other Horticultural crops management practices	Dr.C.Venakata Ramana Scientist HRS, Lam
30-4-09	Dept. of Agriculture	Saaguku Samayatham	INM, IMP & IWM in Horticultural Crops & Chillies.	Dr. S.Surya Kumari Senior Scientist HRS, Lam
1-5-09	Dept. of Agriculture and Horticulture, Guntur	Saaguku Samayatham programme 2009 in Vankayalapadu and Upparapalem Gramapanchayats of Edlapadumandal.	Chilli and other Horticultural crops management practices	Dr.C.Venakata Ramana Scientist HRS, Lam
1-5-09	Dept of Agriculture	Saguku samayuttam at Medikonduru & Bheeminivaripalem	INM, IMP & IWM in Horticultural Crops & Chillies.	Dr. S.Surya Kumari Senior Scientist HRS, Lam





Dates	Organization	Programmes	Topic of Lecture	Scientist attended
2-5-09	Dept of Agriculture and Horticulture, Guntur	Saaguku Samayatham programme 2009 in Cahandavaram Gramapanchayat of Nadendla mandal	Chilli and Horticultural crops management practices	Dr. C.Venakata Ramana Scientist HRS, Lam
2-5-09	Dept of Agriculture	Saaguku Samayatham at Abbarajupalem of Sattenapalli mandal	INM, IMP & IWM in Horticultural Crops & Chillies.	Dr. S.Surya Kumari Senior Scientist HRS, Lam
4-5-09	Dept of Agriculture	Saaguku Samayatham at Talluru & Parasa villages of Pedakurapadu mandal	INM, IMP & IWM in Horticultural Crops & Chillies.	Dr. S.Surya Kumari Senior Scientist HRS, Lam
5-5-09	Dept of Agriculture	Saaguku Samayatham at Mandapadu	INM, IMP & IWM in Horticultural Crops & Chillies.	Dr. K.Uma Jyothi Senior Scientist HRS, Lam
6-5-09	Dept of Agriculture	Saaguku Samayatham at Khambampadu	INM, IMP & IWM in Horticultural Crops & Chillies.	Dr. K.Uma Jyothi Senior Scientist HRS, Lam
6-5-09	Dept of Agriculture	Saaguku Samayatham at Jalalpuram	INM, IMP & IWM in Horticultural Crops & Chillies.	Dr. K.Uma Jyothi Senior Scientist HRS, Lam
29-5-09	Dept of Agriculture	Saaguku Samayatham at Talluru & Parasa villages of Pedakurapadu mandal	INM, IMP & IWM in Horticultural Crops & Chillies.	Dr. S.Surya Kumari Senior Scientist HRS, Lam
30-5-09	Dept of Agriculture	Saaguku Samayatham at Talluru & Parasa villages of Pedakurapadu mandal	INM, IMP & IWM in Horticultural Crops & Chillies.	Dr. S.Surya Kumari Senior Scientist HRS, Lam
2-7-09	Dept of Agriculture	Sathajayanti Utsvalu of Sri Kasu Brahma Nanda Reddy, Hon'ble Former Chief Minister, A.P. at Thubaduvillage	Chilli crop management	Dr. P.Venkata Reddy Principal Scientist HRS, Lam
3-7-09	Dept of Agriculture	Dept. of Horticulture, Ongole. Participated in Farmers Training Programme as are source person at Bobbepalli, Marutur, Ongole.	Hi-Tech Seedling production of chilli	Dr. C.Venakata Ramana Scientist HRS, Lam





Horticultural Research Station, Vijayarai

Dr. V. Vijaya Bhaskar, Senior Scientist (Hort.) has participated in the training programmes organized to the field level workers, A.E.O's, Adarsha Rythus and growers of Horticultural crops and delivered more than 46 lectures on different aspects of Horticultural crops.

ARI, Rajendranagar

Dr. A.S. Padmavathamma Principal Scientist (Hort.) and Dr. A.L.N. Prasad, Scientist (Pl.Phy) have attended a two - day training programme on accounts, budget, service rules and administrative aspects in separate batches from 26th to 29th of May '2009 at Bhoiguda Guest House, Hyderabad.

E. METHOD DEMONSTRATIONS

Horticultural Research Station, Pandirimamidi

Place	Date	Participant & Designation	Particulars
Pedageddada (Rampa chodavaram mandal)	10.2.2010	Sri M.Satti Raju, Scientist (Hort) & Head	Along with CTRI Scientists given Method demonstration on "Spray fluid preparation" in cashew

F. GROUP DISCUSSIONS

Horticultural Research Station, Anantharajupet

Date	Title of Programme	Place/Institution conducted	Topic of the lecture	Name of the Scientist
16-7-2009	Polam badi	Ontimitta, Dept. of Agril. Kadapa Dist	Management of Insects and diseases in citrus crop	Dr. D.Srinivasa Reddy Scientist (E)
20-3-2010	ZREAC	ANGRAU, Nellore Dist	Management of Insect Pests in Horticultural crops	Dr.D.Srinivasa Reddy Scientist (E)
28-4-2010	ZREAC	APHU, Tirupati	Resource persons for horticultural crops	Dr.B. Srinivasulu, Senior Scientist (H), Dr. C. Madhumathi Scientist (H) and Dr.D.Srinivasa Reddy, Scientist (E)





Horticultural Research Station, Pandirimamidi

Organization & Place	Date	Participant & Designation	Particulars
Collectorate, Kakinada	29.8.2009	Dr. B.V.K.Bhagavan, Senior Scientist (Hort)	As a member of the committee on rubber participated in the group discussions with Joint Collector, Kakinada, E.G.Dist
APHU, Tadepalligudem	3.9.2009	Dr. B.V.K.Bhagavan, Senior Scientist (Hort)	Participated in meeting conducted by Hon'ble Vice- Chancellor, APHU on "Water Use Efficiency"
University Auditorium	3.10.2009	Dr. K.T.V.Ramana, Senior Scientist (Hort), Dr. B.V.K.Bhagavan, Senior Scientist (H)	Attended to Brain Storming Session on Micro Level Planning for remunerative Horticulture.
KVK, Kalavcherla	19.2.10	Sri M. Satti Raju, Scientist (Hort)& Head	Participated in SAC meeting
DAATT center, Kakinada	20.2.10	Sri M.Satti Raju, Scientist (Hort)& Head	Participated in DLCC meeting

Grape Research Station, Rajendranagar

Grape Research Station, Rajendranagar conducted Brain storming session on "Revival of grape industry in A.P." on 15-3-2010 at University Auditorium ANGRAU, Rajendranagar, Hyderabad.

Horticultural Research Station, Mallepally

Mr. B. Ramesh Babu, Scientist (Hort) Participated in group discussion on fruit processing of Sweet orange conducted by A. P. Industrial Technical consulting organization at Nalgonda. Dated: 31.10.2009.

G. FIELD DAYS

Horticultural Research Station, Anantharajupet

Dr. M. Kavitha, Scientist (Plant Pathology), HRS, Anantharajupet interacting with progressive farmers of Tamilnadu .



Turmeric Research Station, Kammarpally

K.Uma Maheswari, Scientist (Hort.) participated the field day organized by the ADA, Mallepally on organic farming in Turmeric at Chintalpet on 10.4.2010.





H. MASS COMMUNICATION

(Press notes, Popular articles, TV coverages, Radio scripts etc.)

Grape Research Station, Rajendranagar

The Scientists of Grape Research Station assisting to Agro Meteorology cell, ANGRAU, Rajendranagar in forecasting pests & diseases and their management practices based on weather report at regular intervals.

a. Radio Programmes

Date	Topic	Name of the Scientist
29-09-2009	Udhyapantlalo Bindu mariyu Thumpara sedhyam	Dr. M. Rama Krishna Vice-Principal, Horticultural Polytechnic, Madakasira
15.2.2010	Mulching Techniques in Horticultural crops	Dr. M. Rama Krishna Vice-Principal, Horticultural Polytechnic, Madakasira
5.8.2010	High yielding techniques in Pomegranate	Dr. M. Rama Krishna Vice-Principal, Horticultural Polytechnic, Madakasira
1-09-2009	Pest and Disease Management in Late sown Groundnut, Redgram and Jowar	Mr.R. Preetham Goud Assistant Professor, Horticultural Polytechnic, Madakasira
16-11-2009	Important techniques to be followed in Mango before flowering stage	Mr.R. Preetham Goud Assistant Professor, Horticultural Polytechnic, Madakasira
13.2.2010	Harvesting and Preseervative Techniques of Chilli	Mr.R. Preetham Goud Assistant Professor, Horticultural Polytechnic, Madakasira
14.7.2010	Rainy Season Vegetable Cultivation Techniques	Mr.R. Preetham Goud Assistant Professor, Horticultural Polytechnic, Madakasira
17.6.2009	Varshadharamga Pandla Thotala saagu	Smt.K.Mamatha, Scientist (Hort.) HRS, Kovvur
23.6.2009	Tomato Saagulo Melakuvalu	Smt.E Padma, Scientist (Hort.)HRS, Kovvur
6.7.2009	Chema,Chilakada DumpaPantala saagu melakuvalu	Sri M.Madhava Rao Senior Scientist (Hort.)HRS, Kovvur
17.10.2009	Arati saagu	Sri M.Madhava Rao Senior Scientist (Hort.), HRS, Kovvur
30.12.2009	Pasupu Allam Pantallo Pantakotha anatharam Chepattavalasina jagrattalu	Sri M.M.Naidu Scientist (Hort), HRS, Kovvur
8.4.2010	Pasupu saagulo melakuvalu	Smt. E.Padma, Scientist (Hort.), HRS, Kovvur





Date	Topic	Name of the Scientist
6.7.2010	Aratirakalu Vati Saagulo Melakuvalu-Teesukovalasina Jaagrathalu	Dr. B.V.K.Bhagavan, Senior Scientist (Hort.) HRS, Kovvur
22.7.2010	Pasupu Rakaalu,Sagulo Melakuvalu”	Smt. K.Mamatha, Scientist (Hort.), HRS, Kovvur
04-2-2010	“Ulli sagu melukuvalu” Interview	Dr. B. Srinivasulu, Senior Scientist (H) HRS, Anantharajupet
07-2-2010	“Samvatsaram podavuna jeevanopadiki Banthi pula sagu”.	Smt. C. Madhumathi, Scientist (H), HRS, Anantharajupet
16-2-2010	Mamidilo prastutam teesukovalasina jagrattalu- Interview	Dr. D. Srinivasa Reddy,Scientist (Ento),HRS, Anantharajupet
18-2-2010	“Pandlathotallo patra visleshana vivaralu”	Sri G. Srinivasa Rao, Scientist (SS), HRS, Anantharajupet
18-2-2010	“Shadenetlalo Kuramirapa sagu”.	Smt. Syed Sadarunnisa, Scientist (H), HRS, Anantharajupet
14-2-2010	“Pandlathotallo Samagra kalupu yajamanyam”	Kum. K. Lalitha, Scientist(Agro),HRS, Anantharajupet
14-4-2010	Live phone in programme to answer queries on Standing horticultural crops management	Dr. D. Srinivasa Reddy,Scientist (Ento), HRS, Anantharajupet
21-1-10	Drakshalo Adika digubadulaku harmonulu	Dr. D. Manohar Prasad, Senior Scientist (Hort.), GRS, Rajendranagar
24-1-10	Drakshalo Tegululha Nivarana	Dr. G. Ram Reddy, Scientist (Plant pathology), GRS, Rajendranagar
8-2-10	Drakshalo sasyarakshana Egu mathulaku patinchavalasina Melukavalu	Dr. A. Ranga Reddy Principal Scientist, GRS, Rajendranagar
14-3-10	Drakshalo vesavikatha rimpulu	Dr. B. Srinivas Rao, Senior Scientist (Hort.), GRS, Rajendranagar
20.11.2009	Mamidilo putha samayamlo thisukovalasina charyalu	Dr.G.Satyanarayana Reddy, Sr. Scientist, MRS, Nuzvid
5.7.2010	Mamidilo kotha anantharam purugula nivaranaaku thisukovalasina charyalu	Dr.N.B.V.Chalapathi Rao, Sr. Scientist, MRS, Nuzvid
30-3-09	Mirapkothanantharamparignanam - Interview	Dr.P.Venkata ReddyPrincipal Scientist (Hort.)HRS, Lam





Date	Topic	Name of the Scientist
24-4-09	Mirapa yegumathiki anuvainananyatha Pramanalu	Dr. K Uma Jyothi, Senior Scientist (Hort.), HRS, Lam
11-6-09	Mirapa Rakalu NaarumadiYajamanyam"- Interview	Dr. C.Venkata Ramana, Scientist(Hort), HRS, Lam
27-8-2009	Mirapa sagulo melainayajamanya paddathulu	Dr. S.Surya Kumari, Sr.Scientist (Hort), HRS, Lam
27-8-09	Bendasaagu - Melainayajamanya padhathulu	Dr. K Uma Jyothi, Sr.Scientist (Hort), HRS, Lam
6.9.2009	Sugandha dravyala sasgu	Smt. C.Sarada, Scientist (Hort), HRS, Lam
15-9-09	Mirapa saagulo melakuvalu - Vyavasaya Pathasala	Dr. P.Venkata Reddy, P.S (Hort), HRS, Lam
7-10-09	Mirapasagu-Yajamanyam-Vyavasaya patasala	Dr. K Uma Jyothi, Sr.Scientist(Hort), HRS, Lam
30-10-09	Mirapa sagulo adhikadigubadiki soochanalu	Dr. P.Venkata Reddy, P.S(Hort), HRS, Lam
29-12-10	Mirapa digubadiki nashtamchekurche purugulu-Samagrasasya rakshana	Dr. S.Surya Kumari, Sr.Scientist(Hort), HRS, Lam
11.1.2010	Seethakalaniki anuvaina kuragayala saagu- interview	Smt.A.RajaniScientist(Hort), HRS, Lam
23.01.2010	Vamu sagulo adhika digubadikipatinchavalasina melakuvalu	Sri. K. Giridhar, HRS, LamScientist (Hort)
2.2.2010	Dhaniyala saagulo nanyamainadigubadulaku patinchavalasinamelakuvalu	Smt.C.SaradaScientist(Hort), HRS, Lam
24.2.2010	Mirapa panta lotha समयam lopatinchavalasina nanyathapramanalu	Dr. S.Surya kumari, Sr.Scientist (Hort), HRS, Lam
26.2.2010	Mirapalo virus thegullanivarana -interview	Dr. C V Ramana, Scientist (Hort), HRS, Lam
9.3.2010	Mirapalo Aflotoxins kukaranalu-Nivaranakuthesukovalasina jagrathalu	Dr. P.Venkata Reddy, Principal Scientist (Hort)
	Open field cultivation and poly house technology for cultivation of flowers	Principal Scientist (Hort.) ARI, Rajendranagar





Date	Topic	Name of the Scientist
	Cultivation of flowers	Principal Scientist (Hort.)ARI, Rajendranagar
22.10.2009	Cabbage, Cauliflower sagu lo sasya rakshana	Dr. M. Vijaya, Principal Scientist (PP)VRS, Rajendranagar
22-6-2009	Kharif Kuragayala Saagulo melkuvalu	Dr. R.V.S.K. Reddy, Principal Scientist (H) VRS, Rajendranagar
10-6-2009	Cultivation of Vegetable crops suitable for <i>Kharif</i>	Dr. R.V.S.K. Reddy, Principal Scientist (H) VRS, Rajendranagar
15-10-2009	Cultivation of Vegetable crops suitable for Rabi	Dr. R.V.S.K. Reddy, Principal Scientist (H) VRS, Rajendranagar
16-12-09	Production Technology of different vegetable crops	Dr. R.V.S.K. Reddy, Principal Scientist (H) VRS, Rajendranagar
10.7.2009	Aaku kurala sagulo melakuvalu	Smt. Veena Joshi, Scientist (Hort), VRS, Rajendranagar
12-1-2010	Vesavilo anukoolamina kooragayalu	Smt. Veena Joshi, Scientist (Hort)VRS, Rajendranagar
	Mango pest and disease management “during flowering	Dr. B.K.M.Lakshmi, Scientist (PP)VRS, Rajendranagar
	Onion cultivation and pest and disease management”.	Dr. B.K.M.Lakshmi, Scientist (PP)VRS, Rajendranagar
4-10-2009	Improved package of practices in the cultivation of Oil Palm	Dr. V.Vijaya Bhaskar, Senior Scientist (Hort.)

b. Television Programmes

Date	Topic	Name of the Scientist	Recorded by
19.2.2010	Kanda Chema Dumpala saagulo melakuvalu	Dr. B.V.K.Bhagavan, Senior Scientist, HRS, Kovvur	Doordarshan
1.9.2009	Aratilo yeruvula yajamanyam	Sri. M.M.Naidu	ETV
5.10.2009	Aratilo bindu sedyam	Sri. M.M.Naidu	ETV
16.7.2010	Aratilo Sandra Vyavasaya Padaathulu	Dr.B.V.K.BhagavanSenior Scientist, HRS, Kovvur	Doordarshan
5- 10-2009	“ RYTE Raju Quiz Programme on watermelon”	Dr. B. Srinivasulu, Senior Scientist (H) HRS, Anantharajupet	Doordarshan Hyderabad
18-2-2010	Phone – in live– Programme	Dr. B. Srinivasulu, Senior Scientist (H) HRS, Anantharajupet	Doordarshan Hyderabad





Date	Topic	Name of the Scientist	Recorded by
24-2-2010	Phone – in live Programme. (Kharbuga and puchha sagu)	Dr. B. Srinivasulu, Senior Scientist (H) HRS, Anantharajupet	Doordarshan Hyderabad
4-6-2010	Mango varieties suitable for export and processing	Dr. B. Srinivasulu, Senior Scientist (H) HRS, Anantharajupet	ETV - Annadata
4-6-2010	Management of viral diseases in Papaya	Dr. D. Srinivasa Reddy, Scientist (E)HRS, Anantharajupet	ETV - Annadata
12-6-2010	Package of practices of Turmeric	Sri M.G.Balahussaini, Scientist (H) HRS, Anantharajupet	ETV - Annadata
14-6-2010	Precautions to be taken while selecting the mango grafts for planting and post harvest management	Dr. C. Madhumathi, Scientist (H), HRS, Anantharajupet	ETV - Annadata
	Vittana Pasupu Yempika – Nilvalo Jagrattalu	K. Uma Maheswari, Scientist (Hort.), TRS, Kammarapally	ETV - Annadata
	Pasupu sagulo Yajamanya paddathulu	K. Uma Maheswari, Scientist (Hort.), TRS, Kammarapally	ETV - Annadata
15.1.2010	Plant protection in Grape	Dr. A. Ranga Reddy, Principal Scientist GRS, Rajendranagar	TV 5 - Annapurna
11.2.2010	Nurient management in Sweet Orange (<i>Cheeni thotallo samagra poshaka yajamanyam</i>)	Sri V.N.P. Sivarama Krishna, Scientist (Horticulture)	Doordarshan (Rythu Nestham)
11.2.2010	Leaf miner and mites management in citrus	Sri V.N.P. Sivarama Krishna, Scientist (Horticulture)	ETV
17.1.2009	Maturity indices and precautions to be followed while harvesting cassava tubers	HRS, Peddapuram	Doordarshan
22.2.2009	Harvesting and storage of cassava planting material	HRS, Peddapuram	ETV
26.2.2009	Plant protection in Mango during flowering and fruit set	HRS, Peddapuram	ETV
24.3.2009	Management of Oil palm gardens in summer	HRS, Peddapuram	ETV
4.7.2009	Tapioca nursery raising and planting	HRS, Peddapuram	Doordarshan
27.7.2009	Fertilizer management in Coconut	HRS, Peddapuram	ETV





Date	Topic	Name of the Scientist	Recorded by
8.8.2009	After care and fertilizer management in Tapioca	HRS, Peddapuram	Doordarshan
10.9.2009	Cassava mosaic disease management	HRS, Peddapuram	Doordarshan
21.10.2009	Weed control and fertilizer management in cassava	HRS, Peddapuram	Doordarshan
23.10.2009	Farmer-Scientist interaction on cassava cultivation	HRS, Peddapuram	Doordarshan
12.12.2009	Plant protection in Cassava	HRS, Peddapuram	ETV
5.1.2010	Fertilizers management in Banana	M. Ravindra Babu, Scientist (Hort.)HRS, Aswaraopet	ETV
19.1.2010	Control Measures on Fertilizers management in Papaya	D. Lakshminarayana, Scientist (Hort.) HRS, Aswaraopet	ETV
24.2.2010	Control Measures on Micro nutrients deficiencies in Banana	M. Ravindra Babu, Scientist (Hort.) HRS, Aswaraopet	ETV
25.4.2010	Vesavilo kotha mamidi thotalalo yajamanyam	M. Ravindra Babu, Scientist (Hort.) HRS, Aswaraopet	ETV
7.6.2010	Mamidi Kotha Taruvatha Thotalalo Yajamanyam	M. Ravindra Babu, Scientist (Hort.) HRS, Aswaraopet	ETV
19.6.2010	Geedi Mamidilo eruvula Yajamanyam	M. Ravindra Babu, Scientist (Hort.) HRS, Aswaraopet	ETV
21.07.2009	Sweet orange management and nursery programmes	K. Kaladhar Babu, Scientist (Hort)	ETV Annadata
23.12.2009	Mamidilo sasya rakshana	Dr. N.B.V.Chalapathi Rao, Sr. Scientist, MRS, Nuzvid	ETV
6.1.2010	Mamidilo sasya rakshana	Dr. N.B.V.Chalapathi Rao, Sr. Scientist, MRS, Nuzvid	ETV
11.3.2010	Mamidilo prasthutham thisukovalasina charyalu	Dr. N.B.V.Chalapathi Rao, Sr. Scientist, MRS, Nuzvid	ETV
09-07-09	Post harvest management ofturmeric	Dr. K Uma Jyothi	Doordarshan 8
09-07-09	Pasupu- Yajamanyam-Annadata	Dr. S.Surya Kumari	ETV
10-07-09	Guntur kyathi - Mirapa	Dr. K Uma Jyothi	Doordarshan 8
10-07-09	Guntur kyathi - Mirapa	Dr. S.Surya Kumari	Doordarshan 8





Date	Topic	Name of the Scientist	Recorded by
14-10-09	Benda sagulo melakuvalu	Dr. K Uma Jyothi	ETV
28-10-09	Mirapalo rasampealcheपुरugulu nivarana	Dr. K Uma Jyothi	Doordarshan 8
28-10-09	Mirapayaj amanyam	Dr. K Uma Jyothi	Doordarshan 8
28-10-09	Mirapalo Virus nivarana	Dr. S.Surya Kumar	Doordarshan 8
29-12-09	Mirapalo eruvulaYajamanyam	Dr. K Uma Jyothi	Doordarshan 8
29-12-09	Mirapalo neeti Yaj amanyam	Dr. S.Surya Kumar	Doordarshan 8
31.12.2009	Package of practices of SeedSpices	Sri .K. Giridhar, Scientist (Hort)	Doordarshan
11.01.10	Attended to recording ofManagement of Peanut budnecrosis virus in tomato	Dr. C.Venkata Ramana	ETV
19.3.2010	Mirapa saagulo meakuvalu	Dr.P.Venkat Reddy Principal Scientist (Hort)	Phone in live – DD
	Cultivation of gladiolus	Principal Scientist (Hort.)ARI, Rajendranagar	ETV
	Tips in cultivation of jasmines and chrysanthemum	Principal Scientist (Hort.)ARI, Rajendranagar	ETV
07.05.2010	Varsha kalam lo sagu chese kuragayalalo sasya rakshana	Dr. M. Vijaya, Principal Scientist (PP), VRS, Rajendranagar	ETV Annadata
07.05.2010	Theega jathi kuragayala lo sasya rakshana	Dr. M. Vijaya, Principal Scientist (PP), VRS, Rajendranagar	Doordarshan Saptagiri
	Pest and Disease Management in Vegetable Crops	Dr. M. Vijaya, Principal Scientist (PP), VRS, Rajendranagar	Phone in Live
17-9-2009	on Rabi Vegetable cultivation	Dr. R.V.S.K. Reddy, Principal Scientist (H), VRS, Rajendranagar	Phone in Live - Doordarshan
19-9-2009	Rabi Vegetable cultivation	Dr. R.V.S.K. Reddy, Principal Scientist (H), VRS, Rajendranagar	Phone in Programme – TV5
9-12-2009	“Integrated nutrient management in Vegetable cultivation”	Dr. R.V.S.K. Reddy, Principal Scientist (H), VRS, Rajendranagar	Phone in Programme – Doordarshan
10.6.10	Improved Technology for Tomato cultivation	Dr. K. Dhanumjaya Rao, SS. (H), VRS, Rajendranagar	HMTV





Date	Topic	Name of the Scientist	Recorded by
25-6-2010	Improved Technology for cucurbits cultivation	Dr. K. Dhanumjaya Rao, SS. (H), VRS, Rajendranagar	Doordarshan
19-2-2010	Vesavi benda lo sasya rakshana	Dr. K. Sireesha, Scientist (Ento), VRS, Rajendranagar	Doordarshan Saptagiri
19-2-2010	Thiga jathi kuragayala lo sasya rakshana	Dr. K. Sireesha, Scientist (Ento), VRS, Rajendranagar	Doordarshan Saptagiri
4-3-2010	Vanga lo sasya rakshana	Dr. K. Sireesha, Scientist (Ento), VRS, Rajendranagar	ETV
15-9-2009	Totakoora sagu lo melakuvalu	Smt. Veena Joshi, Scientist (Hort), VRS, Rajendranagar	ETV Annadata
07.06.2010	Varsha kalam lo kuragalalalo samagra eruvula yajamanyam	Dr. Madhavi Latha, Scientist (Agro), VRS, Rajendranagar	ETV Annadata
17-12-09	Jama lo Sasyarakshana	Dr. B.K.M.Lakshmi, Scientist (PP), VRS, Rajendranagar	Saptagiri
30-3-2010	Mamidilo vachu tegullu vanti nivaranna	Dr. B.K.M.Lakshmi, Scientist (PP), VRS, Rajendranagar	ETV Annadata
20-4-2010	Seed treatment and its benefits for pest and disease control	Dr. B.K.M.Lakshmi, Scientist (PP), VRS, Rajendranagar	ETV

I. RYTHU SADASSUS

Horticultural Research Station, Anantharajupet

Dr.B. Srinivasulu, Senior Scientist (H) attended the Rythu sadassu at Gorantla, Ananthapur (Dt) on 6.3.2010 as a Resource person for horticultural crops.

Sri G. Srinivasa Rao, Scientist (SSAC) attended the Rythu sadassu at Kadapa on 3.6.2010 as a Resource person for horticultural crops.

Dr. D.Srinivasa Reddy, Scientist (E) attended the Rythu sadassu at KVK, Utukur Kadapa (Dt.) on 3.6.2010 as a Resource person for horticultural crops.

Dr. B. Srinivasulu, Senior Scientist (H) attended the Rythu sadassu at Jammala madugu Kadapa (Dt.) on 9.6.2010 as a Resource person for horticultural crops.

Dr. B. Srinivasulu, Senior Scientist (H), Dr.D.Srinivasa Reddy, Scientist (E) and Kum. K.Lalitha, Scientist (Agro) attended the Rythu sadassu at Rajampeta on 11.6.2010 arranged exhibition and clarified queries of farmers on horticultural crops.

The District Collector, Kadapa and Sri. B. Chengalarayudu garu, MLC visited Horticulture exhibition organized by HRS, Anantharajupet during Rythu sadassu at Rajampeta on 11-6-2010.





Vegetable Research Station, Rajendranagar

Dr. Hameedunnisa begum, Senior Scientist (Hort.) attended the Rytu sadassu at Tandur on 7-6-2010 as a resource person.

Horticultural Research Station, Mallepally

Mr. B.Ramesh Babu, Scientist (Hort) Participated in Saaguku Samayatham conducted by Govt. A.P. from 05.05.2009 to 09-05-2009 in Nalgonda dist.

Horticultural Research Station, Lam

Dr.Uma Jyothi & Dr.S.Surya Kumari Participated in Revenue divisional level "Saguku samayatham" at Pedakurapadu and Medikonduru Mandals of Guntur dist. and delivered lectures on Production technology and crop protection of chilli and other Horticultural Crops in April and May'2009.

Dr.P.Venkat Reddy Principal Scientist (Hort) attended Rythusadassu at Ghantasala on 27.2.2010.

Dr.P.Venkat Reddy, Principal Scientist (Hort), Dr.S.Surya Kumari Sr.Scientist (Hort) and Dr.C.Venkata Ramana Scientist (Hort) attended Rythusadassu at Reddigudem village of Rajupalem mandal on 20.3.2010

Turmeric Research Station, Kammarpally

K.Uma Maheswari, Scientist (Hort.) participated in Rytu Sadassu conducted at Bodhan, Nizamabad and Kamareddy divisions of Nizamabad district and delivered lecture on Production and Protection practices of Turmeric.

Mango Research Station, Nuzvid

Dr. N.B.V.Chalapathi Rao, Sr.Scientist (Ento) & Head and Smt D.Aparna Scientist (Hort) MRS, Nuzvid participated as resource persons in rythu sadassu on 'Mamidilo sasyarakshana paddathulu' at Burugugudem organized by Dept of Horticulture on 12.1.10

Dr.N.B.V.Chalapathi Rao, Sr.Scientist (Ento) & Head, MRS, Nuzvid participated as resource person in rythu sadassu on 'Mamidilo sasyarakshana paddathulu' at Ponduluru, Mylavaram mandal organized by Dept of Horticulture on 23.1.10

Smt D.Aparna Scientist (Hort) MRS, Nuzvid participated as resource person in rythu sadassu organized during Technology week at KVK, Garikapadu, ANGRAU on 23.1.10

Dr. N.B.V.Chalapathi Rao, Sr.Scientist (Ento) & Head and Smt D.Aparna Scientist (Hort) MRS, Nuzvid





participated as resource persons in rythu sadassu on 'Mamidilo sagu sikshana karyakramam' at Nuzvid organized by Dept of Horticulture on 16.2.10

Dr. N.B.V.Chalapathi Rao, Sr.Scientist (Ento) & Head participated in Chilli Avagahana Sadassu organized by APHU at LamFarm Guntur on 22.2.10

Dr. N.B.V.Chalapathi Rao, Sr.Scientist (Ento) & Head participated Avagahana Sadassu on Bronthispa longisoma - New pest on coconut organized by APHU at HRS, Ambajipet on 8.3.2010

Dr. N.B.V.Chalapathi Rao, Sr.Scientist (Ento) & Head and Smt D.Aparna Scientist (Hort) MRS, Nuzvid participated as resource persons in 'Mamidilo komma kathirimpu' at Maddalacheruvu village, Vissannapet mandal, Krishna Dt. on 24.6.10 organised by Dr. K.L.Rao KVK, Garikapadu, ANGRAU.

Dr. N.B.V.Chalapathi Rao, Sr.Scientist (Ento) & Head, MRS, Nuzvid participated as resource person at divisional rythu sadassus conducted on 7.7.10 at Pedana, 8.7.10 at Vijayawada, 10.7.10 at Pamarru and 11 July at Thiruvuru divisions in Krishna Dt.

Smt D.Aparna Scientist (Hort) MRS, Nuzvid participated at divisional Rythu sadassu at Tiruvuru mandal, on 11.7.10

Dr. N.B.V.Chalapathi Rao, Sr.Scientist (Ento) & Head, MRS, Nuzvid participated as resource person at rythu sadassu conducted on 12.7.10 at Swaraj maidan, Vijayawada organized by Krishna Industrial and Agriculture Exhibition society

J. KISAN MELAS

Brain storming session on "Revival of Grape Industry in Andhra Pradesh" organized by GRS, Rajendranagar on 15th March, 2010 at ANGRAU Auditorium, Rajendranagar.



Date	Place	Role	Name of the Scientist
26-1-2008	HorticultureShows	Participated and exhibited fruits and photographs at the stall	Dr.A.Bhagwan
26-6-2009	HRS, Anantharajupet	Arranged the exhibits on account of APHU Formation Day	Dr. B. Srinivasulu, Dr. D. Srinivasa Reddy, Sri G. Srinivasa Rao and Kum. K. Lalitha
24-1-2010	KVK, Utukur (ANGRAU)	As resource person for horticultural crops	Smt. C. Madhumathi Scientist (H)

K. RYTHU CHAITANYA YATRAS

Grape Research Station, Rajendranagar

Dr. G. Ram Reddy, Scientist (Plant Pathology) participated as a resource person in the programme "Saguku Samayuttam " organized by Department of Agriculture, Govt. of A.P. in Kandukur, Maheswaram, Mandals of Ranga Reddy District, A.P. on 30-4-2009, 2-5-2009, 6-5-2009 and 7-5-2009.

Dr. D. Manohar Prasad, Senior Scientist (Hort.) participated as a resource person in the programme "Saguku samayuttam" organized by Department of Agriculture, Govt. of A.P. in Keesara Mandals of R.R.District of A.P. on 30-4-2009.





Citrus Research Station, Tirupati

All the scientist attended Rythu Chaitanya yatra programme organised by the Department of Agriculture at different mandals of the district during May 2010.

Horticultural Research Station, Lam

Dr.C.Sarada Scientist (Hort), Sri .K. Giridhar Scientist(Hort), Dr.C.Venkata Ramana scientist of HRS, Lam participated in rythu chathanya yathra during May 2009.

Horticultural Research Station, Anantharajupet

Scientists of HRS, Anantharajupet participated in Rythu chaitanya yatralu in three revenue divisions of Kadapa district as resource persons for horticultural crops from 17-5-2010 to 2-6-2010.

Horticultural Research Station, Pandirimamidi

Smt R.Naga Lakshmi, Scientist (Hort) participated in Saaguku Samayattam Programme 2009 in Tadepalli, Maddiveedu, Puttagondi, Doramamidi, Mallavaram on 29.4.2009.

Dr. K.T.V.Ramana, Senior Scientist (Hort) participated in Saaguku Samayattam Programme 2009 of Gangavaram mandal in Molleru, Pidotamamidi, Nellipudi, Vemulova on 30.4.2009.

Smt V.Bhuvaneswari, Scientist (Pl.Path) participated in Saaguku Samayattam Programme 2009 of Maredumilli mandal in Elliwada, Kakuru, Pamuleru, Kutrawada on 30.4.2009.

Dr. K.T.V.Ramana, Senior Scientist (Hort) participated in Saaguku Samayattam Programme 2009 of Gangavaram mandal in Jaggampalem, Ziampalem on 1.5.2009.

Smt V.Bhuvaneswari, Scientist (Pl.Path) participated in Saaguku Samayattam Programme 2009 of Maredumilli mandal in Kundada, G.M.Valasa on 4.5.2009.

Smt V.Bhuvaneswari, Scientist (Pl.Path) participated in Saaguku Samayattam Programme 2009 of Maredumilli mandal in Vetukuru, P.M.Kota, Ivvampalli, Bhimavaram, Arjun lova on 9.5.2009.

Dr.K.T.V.Ramana, Senior Scientist (Hort) and Dr.K.R.Prasad participated in "Aadharsha Rythulu" Programme 2009 of Rampachodavaram mandal in HMTTC, Rampachodavaram on 19.11.2009.

Vegetable Research Station, Rajendranagar

Dr. M. Vijaya, Principal Scientist (PP) attended to Rythu Chaithanya Yathra Programme and visited different villages of Ibrahimpatnam mandal from 17.05.2010 to 02.06.2010.

Dr. Hameedunnisa Begum, Senior Scientist (Hort.) participated in Rytu Chaitanya Yatra in different villages of Moinabad and Chevella from 17-5-10 to 2-6-10.

Dr. K. Sireesha, Scientist (Ento.) attended to Rythu Chaithanya Yathra Programme and visited different villages of Medchal, Shameerpet Mandal. May 17th to 2nd June

Dr. P. Madhavi latha, Scientist (Agro) attended to Rythu Chaithanya Yathra Programme and visited different villages of Shamshabad Mandal. May 17th to 2nd June

Dr. B.K.M.Lakshmi, Scientist (PP) attended to Rythu Chaithanya Yathra Programme and visited different villages of Medchal, Shameerpet Mandal. May 17th to 2nd June





Mango Research Station, Nuzvid

Dr. N.B.V. Chalapathi Rao, Sr. Scientist(Ento) & Head, MRS, Nuzvid participated in Rythu Chaitanya Yatra's in Nuzvid mandal, Krishna Dt. from 17-5-10 to 2-6-10

Smt. D.Aparna, Scientist (Hort), MRS, Nuzvid participated in Rythu Chaitanya Yatra's in Tiruvur mandal, Krishna Dt. from 17-5-10 to 2-6-10

Horticultural Research Station, Ashwaraopet

Sri M. Ravindra Babu, Scientist (H) participated in Rythu Chaityana Yatras and delivered "Management practices in Mango and Cashew" in Anantharam, Ramannagudem of Aswaraopet Mandal on 18.5.2010.

Sri M. Ravindra Babu, Scientist (H) participated in Rythu Chaityana Yatras and delivered "Production Technologies in Mango, Cashew and Oil palm" in Kuppunguntla and chintagudem Villages of Penubally mandal on 25.5.2010.

Sri M. Ravindra Babu, Scientist (H) participated in Rythu Chaityana Yatras and delivered "Production Technologies in Mango, Cashew and Oil palm" in Agharam, Kuppunguntla and Karavayagudem Villages of Penubally mandal on 26.05.2010.

Sri D.Lakshmi Narayana, Scientist (H) participated in Rythu Chaityana Yatras and delivered "Production Technologies in Mango, Cashew and Oil palm" in Uttalapally village of Aswaraopet Mandal on 27.05.2010.

Sri D.Lakshmi Narayana, Scientist (H) participated in Rythu Chaityana Yatras and delivered "Production Technologies in Mango, Cashew and Oil palm" in Vinayakapuram village of Aswaraopet Mandal on 27.05.2010.

Sri M.Ravindra Babu, Scientist (H) participated in the Rythu Sasassu, 2010 at Khammam in Khammam on 7.6.2010.

Sri M.Ravindra Babu, Scientist (H) participated in the Rythu Sasassu, 2010 at Kothagudem in Kothagudem on 8.6.2010.

Sri D.Lakshmi Narayana, Scientist (H) participated in the Rythu Sadassu at Palvoncha in Palvoncha on 9.6.2010

Sri D.Lakshmi Narayana, Scientist (H) participated in the Rythu Sadassu at Bhadrachalam in Bhadrachalam on 11.6.2010.

L. VILLAGE ADOPTION PROGRAMME

Horticultural Research Station, Lam

Name of the Training Programme	Target Group	Duration	No. of Sessions Handled
National Seminar on Spices "current trends and future prospects of spices with special reference to chillies, turmeric and seed spices"	Farmers & scientists all over the nation	Two days (24 & 25 th March, 2009)	6





VI. PUBLICATIONS

(Books, Laboratory manuals, Technical bulletins, Research papers etc.)

A. RESEARCH PAPERS

- Applied Entomology, pp 228 published by New Vishal Publications, New Delhi – Dr. D. Srinivasa Reddy, Scientist (Ento).
- Efficacy of Carbon dioxide against eggs of pulse beetle, *Callasobruchus maculatus* by Chitra Srivastava, Sinha S N, Manmohan S and Srinivasa Reddy D. In Food Legumes for Nutritional Security and Sustainable Agriculture, pp 745-752, Vol.2, Indian Society of Genetics and Plant Breeding, New Delhi, India
- “Effect of fertigation on growth and yield of Turmeric (*Curcuma longa* L.) var. Mydukur”- Abstract on National seminar on spices conducted at Guntur on 24-3-2009 & 25-3-2009.
- Syed Sadarunnisa, Madhumathi. C, Hari Babu. K and Sreenivasulu. B Effect of fertigation on growth and yield of papaya cv. Red lady. Acta Horticulture – Vol. No.851(II): 395-400.
- Srinivasa Reddy. D and Vijay Bhaskar.L Presented poster paper in 8th National Symposium on problems and perspectives in Eco-friendly Innovatives to Plant protection held at Kanpur (U.P) from 24-25th January, 2010 titled “Biology and Management of Mango Flower Webber.
- B.S. Gotyal, Chitra Srivastava, Suresh Walia, S.K. Jain and Srinivasa Reddy, D 2010. Efficacy of Wild Sage (*Lantana camara*) extracts against Almond moth (*Cadra Cantella*) in stored Wheat (*Triticum aestivum*) seeds. Indian Journal of Agricultural Sciences ; 80(5) : 85-88.
- D. Srinivasa Reddy. Chitra Srivastava and B.S. Gotyal 2010. Evaluation of Insect growth regulatory activity of Neem formulations against *Helicoverpa armigera*. Annals of Plant Protection Sciences.18(1) : 77-81.
- K. Alpa, K. Gopal, V. Gopi, S. Aliya, B.Sreenivasulu and K. Purushotham. Finger printing of acid lime varieties and clones having varied resistance to bacterial canker, using RAPD marker. Archives of phyto pathology and plant protection: Vol. 43.7, 1 May, 624-633.
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- K. Gopal, V. Gopi, L. Kalyani, M. Sreelatha and B. Sreenivasulu (2010). Symptom based diagnosis of Huanglongbing (citrus greening) disease by PCR in sweet orange (*Citrus sinensis* Osbeck) and Acid lime (*Citrus aurantifolia* Swingle). Archives Of Phytopathology And Plant Protection, 43(9): 863 - 870.





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- K. Alpa, K. Gopal. V. Gopi, Aliya, B. Sreenivasulu and K. Purushotham (2010). Finger printing of acid lime varieties and clones having varied resistance to bacterial canker, using RAPD marker. *Archives of Phytopathology and Plant Protection*, 43(7): 624-633.
- V. Gopi, K. Gopal, T. Gouri Sankar and S. Palanivel (2010). Detection of citrus yellow mosaic virus by PCR and nucleic acid spot hybridization using non-radio active probes on commercial citrus species. *Archives of Phytopathology and Plant Protection*, 43(9): 887-894.
- P. Madhusudhan, K. Gopal, V. Haritha, U.R. Sangale and S.V.R.K. Rao (2010). Compatibility of *Trichoderma viride* with fungicides and efficiency against *Fusarium solani*. *Journal of Plant Disease Science*, 5(1):23-26.
- V. Haritha, K. Gopal, P. Madhusudhan, K. Viswanath and S.V.R.K. Rao (2010): Integrated management of damping-off disease incited by *Pythium aphanider malum* (EDSON) Fitzp. in tobacco nursery, *Journal of Plant Disease Science*, 5(1):41 -47.
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- K.C. Deepthi and K. Gopal (2010). Molecular Charcterization of *Trichoderma* isolates obtained from rhizoplane of sweet orange for the control of dry root rot disease caused by *Fusarium solani*. *International Journal of Biological Science and Engineering*. 1(1) : 66-72
- K.N. Gupta, V.K. Baranwal, B.K. Prasanna, J. Singh, Q.M.R. Haq and K. Gopal (2009). Genome sequencing, Comparison and Phylogenetic analysis of *Citrus yellow mosaic virus* isolates originating from different citrus species in India. *International Journal of Virology*: 1-11.

Abstracts

- K. Gopal, V. Gopi. Y. Sreenivasulu, T. Gowri Sankar, A. Snehalatharani, V.N.P. Sivaramakrishna, G. Sarada and G. Prasad Babu (2010). Development of SCAR marker for the detection of *Trichoderma* (TCT4 and TCT10), a biocontrol agent against *Fusarium solani* causing dry root rot of citrus. National seminar on "Microbial biodiversity and bioprospecting - Exploring the unexplored" 25-26th March-2010, SVUPGC, Kavali pp 7.
- K. Gopal, V. Gopi, A. Snehalatharani, T. Gouri Sankar, V.N.P. Sivaramakrishna and G. Sarada. (2010) Screening for resistance and Biochemical changes in Acid lime clones in response to Bacterial Canker disease (*Xanthomonas axonopodis* pv. *citri*) National seminar on "Production Technology and Marketing of Acid lime in India" 7-9 September 2010, NRCC, Gujarat, pp 43.





- K. Gopal, V. Gopi, M. Suresh and A. Snehalatharani (2010) Studies on longitudinal splitting of bark and wood disease in acid lime: Etiology, screening of Bioagents, fungicides *in vitro* and *in vivo*. National seminar on "Production Technology and Marketing of Acid lime in India" 7-9 September 2010, NRCC, Gujarat, pp 39.
- Snehalatharani, G. Sarada, V. Gopi, Y. Sreenivasulu, V.N.P. Sivaramakrishna, T. Gouri Sankar and K. Gopal (2010) Management of bacterial canker in acid lime through biopesticides. National seminar on "Microbial biodiversity and bioprospecting- Exploring the unexplored" 25-26th March-2010, SVUPGC, Kavali pp 25.
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- Snehalatharani, V. Gopi, T. Gouri Sankar, G. Sarada, V.N.P. Sivaramakrishna and K.. Gopal. (2010) Screening of citrus germplasm for resistance against Huanglongbing (Greening Disease), a major threat to Citriculture. National seminar on "Production Technology and Marketing of Acid lime in India" 7-9 September 2010, NRCC, Gujarat, pp 40.
- N. Narayana, V.N.P. Sivaramakrishna, K. Purushotham, G. Sarada, A. Snehalatharani and K. Gopal (2010). Effect of biofertilizers on growth and fruit yield of sweet orange cv sathgudi at tirupati condition. National seminar on "Microbial biodiversity and bioprospecting- Exploring the unexplored" 25-26th March-2010, SVUPGC, Kavali PP 13.
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- M. Ramaiah, G. Sarada, A. Ramakrishna Rao, A. Snehalatharani, V. Gopi, V.N.P. Sivaramakrishna, Y. Sreenivasulu, T. Gouri Sankar and K. Gopal (2010) Management of citrus butterfly using *Bacillus thuringiensis* in sweet orange cv. Sathgudi. National seminar on "Microbial biodiversity and bioprospecting-Exploring the unexplored" 25-26th March-2010, SVUPGC, Kavali pp 19.
- G. Sarada, M. Ramaiah, A. Snehalatharani, V.N.P. Sivaramakrishna and K.Gopal. Comparative efficacy of various insecticides against leaf miner, *Phyllocnistis citrella* in citrus. National seminar on "Production Technology and Marketing of Acid lime in India" 7-9 September 2010, NRCC, Gujarat, pp 38.
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- B.K.M.Lakshmi, D.Anitha kumari and G.Satyanarayana Reddy 2009 Management of mango Anthracnose with foliar sprays of fungicides Research Article/ Extended Abstract National





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- Anitha kumari.D, B.K.M.Lakshmi, Suresh Kumar T and G.Satyanarayana Reddy 2009 Population dynamics of major pests of pomegranate in central Telangana zone of Andhra Pradesh Abstract 2ndInternational Symposium on Pomegranate and Minor including Mediterranean Fruits from June23-27,2009 ISPMF-2009 University of Agricultural sciences Dharwad ,India and International Society for Horticultural Science.
- G. Ramanandam, C.Ravi Sankar, D.Sri Hari, K.Shivaraju and P.Ramakumar 2009 Cassava tuber quality as influenced by integrated nutrient management practices under rain fed conditions of Andhra Pradesh Journal of Root crops, Vol. 35 No.2, pp226-228.
- Dr. N.B.V. Chalapathi Rao and Dr. Y. Rama Rao "Studies on insecticidal management of red banded mango caterpillar *Deanolis albizonalis* (Hampson) (Lepidoptera: Pyralidae) in Andhra Pradesh" in "National Seminar on Production, Post Harvest Technology and Marketing of Mango"
- S.Surya Kumari, K.Uma Jyothi, D.Srihari, A.Siva Sankar and C.Ravi Sankar 2009 " Evaluation of paprika genotypes in the Vertisols of Andhra Pradesh" Green Farming Vol. 2 (11):733-737
- S.Surya Kumari ,K.Uma Jyothi, P.Venkata Reddy, T.Vijaya Lakshmi and K.V.Siva Reddy 2009 Studies on the effect of foliar application of Micronutrients on yield and quality in Chilli Cultivar Lam-334"Green Farming Vol. 2 (5);224-226





- S.Surya Kumari , K.Uma Jyothi , S.Bharathi and K.V.Siva Reddy 2009 “Integrated Nutrient Management Studies in chilli Cv LCA353 in the vertisols of Andhra Pradesh” Green Farming Vol. 2 (5);278-279
- K.Uma Jyothi , S.Surya Kumari, P.Venkata Reddy, T.Vijaya Lakshmi and K.V.Siva Reddy 2009 Studies on the performance of Chilli (*Capsicum annum. L*) varieties for high yields in the Vertisols of Andhra Pradesh” Green Farming.Vol 2 (5);278-279
- S.Surya Kumari ,K.Uma Jyothi, P.Venkata Reddy, C.Venkata Ramana and T.Vijaya Lakshmi 2009 National Scenario of Paprika research- Problems and Perspectives National Seminar on Spices (NSS-2009), October 22-24, SKUAT, Jammu
- Sarada, K. Giridhar and N. Hariprasada Rao 2009 “New High Yielding Coriander Variety Sudha for rainfed black soils” Indian Journal of Arecanut, Spices and Medicinal Plants, Vol. 11, No. 1, Jan-Mar 2009.
- Sarada, K. Giridhar and N. Hariprasada Rao 2009 “Variability, heritability and genetic advance in fenugreek” Spice India Vol. 1122, No.1 1, November 2009
- K. Giridhar, C. Sarada, P. Venkata Reddy and T. Yellamanda Reddy “Use of male gametocide: An alternative to cumbersome emasculation in coriander (*Coriandrum sativum L.*)” Journal of Horticulture and Forestry Vol. 1(7) pp. 126-132 September, 2009
- Sarada, K. Giridhar and N. Hariprasada Rao 2009 “Performance of ajowan genotypesone “Annals of plant physiology Vol.23(1): 99-100
- V. Vijaya Bhaskar, P. Venkata Rao and Y. N. Reddy. 2008. Effect of certain chemicals and their combinations on the postharvest physiology and biochemistry of cut rose (*Rosa hybrida L.*) petals during vase life period. Journal of Ornamental Horticulture 11(3): 161- 167.
- V. Vijaya Bhaskar and P. Suryanarayana Reddy. 2009. Advances in the cultivation of Garlic. Souvenir of National Seminar on Vegetable Production Through Accelerated Technological Advancement and Postharvest Management held at the Sunayana Auditorium, Kurnool from 4-5th, May 2009. pp. 8-16.





B. POPULAR ARTICLES

Name of the article	Authors	Name of the Magazine
GRS, Rajendranagar Drakanashinche cheeda peedalu (Powdery mildew disease) and Shashya rakshana	Dr.G.Ram Reddy	Raythu Nestham, Feb, 2010
HRS, Ashwaraopet Krushu yunte thotalu sirulu kurepestayi	M.Ravindrababu	Agriclinic, June, 2010
Tolakarilo pandla thotalo yajamanyam	M.Ravindrababu	Agriclinic, July, 2010
HRS, Lam Mirapalo puutha, pinde dasalloasinchu puruguli yajamany paddathulu	Smt.P.Vijaya Lakshmi and Dr. P.Venkata Reddy	Annadata, April, 09
Mirapalo vithana suddi dwararasam peelchu purugula nivarana	Smt.P.Vijaya Lakshmi and Dr. P.Venkata Reddy	Annadata, August, 09
Mirapalo vithana suddi dwararasam peelchu purugula nivarana	Smt.P.Vijaya Lakshmi and Dr. P.Venkata Reddy	Annadata, September' 09
Mirapalo PuthapuruguYajamanyam	Smt.P.Vijaya Lakshmi and Dr. P.Venkata Reddy	Annadata, November 09
Virus thegulla vyapthilorasampelchu purugula pathra	Smt.P.Vijaya Lakshmi and Dr. P.Venkata Reddy	Annadata, December 09
HRS, Anantharajupet Tamalapaaku thotalo aasinche tegulla nivarana	Syed Sadarunissa, Scientist (H)	Annadata, August 2009
Banthipula sagutho edadi podavuna jeevanopadi	Smt C.Madhumathi	Annadata, April 2010
VRS, Rajendranagar Vinijya Saralilo Sapota Saguku Tesukovalasina Cheryalu	B.K.M.Lakshmi, Dr.D.Anitha Kumari and G. Satyanarayana Reddy	Annadata May,2009
Mamidilo Nanyamaina Adhika dignabadi ki Yajamanya Paddathulu	B.K.M.Lakshmi, Dr.D.Anitha Kumari and G. Satyanarayana Reddy	Annadata October, 2009
Mamidilo Nanyamaina digubadiki Chepattavalasina Nelavari Sasyarakshana Cheryalu	B.K.M.Lakshmi, Dr.D.Anitha Kumari and Dr.A.Bhagavan	Annadata October, 2009
Pandla thotalolo pindinalli Tesukovalasina Jagrathalu	Dr.D.Anitha Kumari, B.K.M.Lakshmi, Dr.A.Girvani and G. Satyanarayana Reddy	Annadata April, 2009
Nanyamina kooragayala naru – melaina utpathi maargalu – vyavasayam	Smt. Veena Joshi	August, 2009



Name of the article	Authors	Name of the Magazine
MRS, Nuzvid Prasthutam mamidilo thisukovalasina jagrathalu	Dr. N.B.V. Chalapathi Rao and D.Aparna	Paadipantalu, May, 2010
HRS, Vijayarai Package of practices in the cultivation of Cocoa	V. Vijaya Bhaskar	Vyavasaya, Panchangam, 2009
Aonla - a wonderful plant for the dry land areas	M. Siva Prasad, V. Vijaya Bhaskar and A. Sai Ram.	Annadata, April, 2009

C. PARTICIPATION OF TEACHERS / SCIENTISTS IN INTERNATIONAL AND NATIONAL CONFERENCES/ SYMPOSIUMS/WORKSHOPS.

Horticultural Research Station, Pandirimamidi

- Dr.K.T.V.Ramana, Senior Scientist (Hort) attended to Biennial Work shop on AICRP on Palms held at Navasari Agricultural University, Navasari from 9.10.2009 to 16.1.2009.
- Sri. P.C.Vengaiah, Scientist(FST) presented paper on value addition in Palmyrah at MPUAT, Udaipur from 18.2.2010 to 19.2.2010.

Horticultural Research Station, Anantharajupet

- Dr. D. Srinivasa Reddy, Scientist (Ento), participated in National Symposium on “Problems and Perspectives in Eco-friendly Innovatives to Plant protection” held at Kanpur (U.P) from 24-25th January, 2010 and presented a paper on Biology and management of mango flower webber.

Grape Research Station, Rajendranagar

- The Scientists of Grape Research Station, Rajendranagar attended the XIX Group Workers meeting of AICRP on STF from 14th to 17th December, 2009 at BSKKV, Dapoli, Maharastra.

Vegetable Research Station, Rajendranagar

- All the Scientists of AICRP on Vegetable Crops attended the XXVIII Annual Group meeting of AICRP on Vegetable Crops, at IIHR, Bengaluru from 16.01.2010 to 19.01.2010.
- All the Scientists attended the Brain storming session on Grape and Mango on 6-5-2010. at University Auditorium, Rajendranagar.
- ‘Molecular analysis of intra cultivar variability in Baneshan cultivar of Mango (*Mangifera indica* L.)’ in Andhra Pradesh. As a poster in National Symposium on ‘Genomics and Crop





Improvement : Relevance and Reservations –February 25th – 27th , 2010, at ANGRAU, Rajendranagar, Hyderabad-30.

- Intra varietal variability in Peddarasam Cultivar of Mango (*Mangifera indica* L.) in Andhra Pradesh. As a poster in National Symposium on 'Genomics and Crop Improvement : Relevance and Reservations –February 25th – 27th , 2010, at ANGRAU, Rajendranagar, Hyderabad-30.
- Identification and Differentiation of Indigenous Juicy Genotypes of Mango (*Mangifera indica* L.) in Andhra Pradesh using SSRs. As a poster in National Symposium on 'Genomics and Crop Improvement :Relevance and Reservations –February 25th – 27th , 2010, at ANGRAU, Rajendranagar, Hyderabad-30.
- Genetic Distinctiveness and Relationships of Indigenous Landraces of Mango (*Mangifera indica* L.) in Andhra Pradesh . As a poster in National Symposium on 'Genomics and Crop Improvement : Relevance and Reservations – February 25th – 27th , 2010, at ANGRAU, Rajendranagar, Hyderabad-30.
- “Tagging of gene for sex determination in kakrol (*Momordica dioica* Roxb)” As a poster in National Symposium on 'Genomics and Crop Improvement : Relevance and Reservations –February 25th – 27th , 2010, at ANGRAU, Rajendranagar, Hyderabad-30.
- Participated and presented papers in “National Symposium on 'Genomics and Crop Improvement : Relevance and Reservations” February 25th – 27th , 2010, at ANGRAU, Rajendranagar, Hyderabad-30
- Dr. B.K.M.Lakshmi, Scientist (PP) participated in National seminar on production, post harvest Technology and marketing of Mango from 23rd to 25th September 2009. At Periyakulam, Tamilnadu. Presented paper Management of mango Anthracnose with foliar sprays of fungicides.
- Dr. B.K.M.Lakshmi, Scientist (PP) participated in 10th Biennial group workers meeting on Tuber crops 9 to 11thOctober 2009 At OUAT , Bhubaneswar Presented Biennial report on Tuber crops 2007-2009 work done report
- Dr. B.K.M.Lakshmi, Scientist (PP) participated in 5thInternational conference on “Plant Pathology in the Globalized Era ’ 10- 13th Nov 2009 At IARI, New Delhi Presented poster Effect of weather on incidence of diseases of Mango (*Mangifera indica* L) in different regions of Andhra Pradesh
- Dr. B.K.M.Lakshmi, Scientist (PP) participated in National symposium on Biotechnological and Biorational for Pest management in agriculture and 33 rd Annual conference of Ethological Society of India Nov 6-7,2009UAS, Dharwad Presented Poster Influence of abiotic factors on the incidence of hopper and chemical control strategies in mango
- Dr. B.K.M.Lakshmi, Scientist (PP) participated in State level seminar on “Sustainable Vegetable production &post harvest management”25/3/10 At Nizamabad Resource person Disease management in Tomato & Chili





- Dr. B.K.M.Lakshmi, Scientist (PP) participated in Sanitary and Phyto Sanitary Measures and risk analysis to promote Agricultural trade in India ANGRAU, Hyderabad and Tuskegee University, Alabama, USA 27-July-2009 30-July-2009.

Horticultural Research Station, Mallepally

- Mr. K. Kaladhar Babu, Scientist (Hort) participated in National seminar on Present status and future prospects of Acid lime in India at Rahuri, Maharastra Dt. 11-08-2009 to 13-08-2009 and presented lead paper on Acid lime status in Andhra Pradesh.

Mango Research Station, Nuzvid

- Dr. N.B.V. Chalapathi Rao, Scientist (Ento) participated in “National Seminar on Production, Post Harvest Technology and Marketing of Mango” at Horticultural College and Research Station, Periyakulam, Tamilnadu from 23rd to 25th September 2009.
- Dr. N.B.V. Chalapathi Rao, Sr. Scientist (Ento) & Head, MRS, Nuzvid participated in Brain storming session on mango organized by F.R.S, Sangareddy on 6.5.10 at Sangareddy

Horticultural Research Station, Lam

- Sarada, Scientist (Hort.) and K. Giridhar Scientist (Hort.) attended XX Workshop of AICRP on Spices at TANU, on Coimbatore 6-8th June, 2009
- Dr.K.Uma jyothi Senior Scientist (Hort.) attended National Seminar on the role of Green Chemistry in achieving clean and green environment. Sponsored by UGC, APPCB and APCOST on 17-18, July'2009 Dept. of Chemistry, Hindu College, Guntur.
- Sri. K. Giridhar Scientist (Hort.) attended National Workshops on Cumin, Fennel, Coriander and Fenugreek NRC, Ajmer September 15- 18, 2009.
- Dr .C.Venkata Ramana Scientist (Hort.) attended International Conference on Horticulture (ICH-2009) - Horticulture for livelihood security & economic growth held at Bangalore on 9th to 12th November, 2009.
- Dr.S.Suryakumari Senior Scientist (Hort.), Venkat Ramana Scientist (Hort.), and A.Rajani Scientist (Hort.), attended Brain Storming on Molecular Breeding and Marker Assisted Selection' at IIHR, Bangalore on 19th January 2010.
- Dr.S.Suryakumari Senior Scientist (Hort.), Dr. C. Venkat Ramana Scientist (Hort.),and A.Rajani Scientist (Hort.), attended XXVIII Group meeting of AICRP on Vegetables (Workshop) at IIHR, Bangalore on 20th to 24th January 2010.
- Sri.K. Giridhar Scientist (Hort.) attended National Conference on “Production of quality seeds and planting material” IARI, New Delhi 11-14th March 2010.





ARI, Rajendranagar

- Participated in the Brain storming session “Revival of grape Industry” on 15.04.2010 organized by Grape Research station and State department of Horticulture.
- The Principal Scientist (Hort.) has attended International Seminar on Horticulture from 9th to 12th November 2009 held at Bangalore and presented two abstract papers on varietal performance of Tube rose and Chrysanthemum.
- The Principal Scientist (Hort.) and the Scientist (PI. Physiology) have attended the XIX Biennial workshop held at Pusa Institute, New Delhi from 10th to 12th December 2009 and the work was reviewed by the concerned In-charges for the years 2007-09. New technical programme has been proposed for the years 2010-11.

Horticultural Research Station, Vijayarai

- Dr. V. Vijaya Bhaskar, Senior Scientist (Hort.) has participated in the “National Conference on Floriculture for Livelihood and Profitability” held at IARI New Delhi from 16.03.2009 to 19.03.2009 and presented a poster presentation on Effect of different chemicals on the microbial growth during the vase life period of cut rose cv. First Red. The poster has been adjudged as best poster award.
- Dr. V. Vijaya Bhaskar, Senior Scientist (Hort.) has participated in the “National level seminar on vegetable production through accelerated technological advancement & postharvest management” held at Sunayana Auditorium, Kurnool organized by NHRDF, Nasik. from 04.05.2009 to 05.05.2009 and delivered a guest lecture on “Export trade and Advances in the cultivation of garlic”.
- Dr. V. Vijaya Bhaskar, Senior Scientist (Hort.) has participated in the “State level workshop on Cocoa” held at IADP Hall, Eluru organized by the Department of Horticulture, Andhra Pradesh on 17.09.2009 and delivered a guest lecture on “Improved Package of Practices in the Cultivation of Cocoa”.





VII. FINANCE AND BUDGET

The major financial grants to the Andhra Pradesh Horticultural University come from the A.P. Government under Plan by way of grants-in-aid for running the institution. The block grants approved in the budget for the year 2009-10 was Rs.3393.76 lakh, including salaries grant of Rs. 848.76 lakh and other grants-in-aid of Rs.2545 lakh.

The ICAR assistance was Rs.949.34 lakh (including NAIP) and the Govt. of India assistance was Rs. 90.74 lakh while the amount received from other agencies was Rs.22.80 lakh and Departmental sponsored schemes Rs.456.35 lakh.

Thus, the total budget of the University for the year 2009-10 was Rs.4912.99 lakh.





VIII. AWARDS AND HONOURS

FELLOW OF NAAS



Dr. S.D. Shikhamany, Vice-Chancellor, APHU has awarded with a "Fellow of the National Academy of Agricultural Sciences".

STATE BEST TEACHER AWARDS

Dr. Solipuram Amarender Reddy, Associate Dean, College of Horticulture, Rajendranagar, Hyderabad has received the State Best Teacher Award from the hands of Sri. K. Rosaiah, Hon'ble Chief Minister, Government of Andhra Pradesh on 14th November 2009.



Dr.B.Govinga Rajulu, CRS, Petlur received best poster presentation award for his paper entitled "Integrated Management of Root-rot Disease in Acid lime Nursery" at National Seminar on Acid lime in India "Present status and future prospects, August 11-13, 2009 at MPKV, Rahuri.

Dr.A.Ranga Reddy, Principal Scientist (Ento.) & Head, GRS, Rajendranagar nominated as a Co-chairman for Plant Protection session in XIXth Group workers meeting of AICRP on Sub tropical Fruits (Grapes), held at BSKVV, Dapoli, Maharashtra from 14th – 17th December 2009.

Dr. Natarajan Seenivasan, HRS, Anantapur was awarded 'Outstanding publication award' in Ornamental Horticulture section by the American Society for Horticultural Sciences at 2009 ASHS annual conference in St. Louis, Missouri, USA, for his paper titled, " Morphological, Physiological and Antomical Responses of *Salvia splendens* under high temperature stress".

Dr.N.B.V. Chalapathirao and Dr.Y.Rama Rao, HRS, Nuzvid, awarded second best oral paper presentation for oral presentation of research paper "Studies on insecticidal management of red banded mango caterpillar *Deanolis albizonalis* (Hampson) *Lepidoptera* : *Pyrilidae*) in Andhra Pradesh" in "National Seminar Production, Post Harvest Technology and Marketing of Mango" held at Horticultural college and Research Station.

Horticultural Research Station, Anantharajupet

The pre-released mango hybrid, Khader X Jehangir got first prize in Mango Show organized by Department of Horticulture. In total HRS, Anantharajupet got 3 first prizes, 5 second prizes and 1 third prize for mango exhibits.



IX. OTHER SIGNIFICANT EVENTS IF ANY

VISITORS TO APHU

Hon'ble Minister of State (Independent charge), Environment and Forests, Government of India visited Andhra Pradesh Horticultural University



Sri Jairam Ramesh garu Hon'ble Minister of State (Independent charge), Environment and Forests, Government of India, New Delhi, Sri P. Ramachandra Reddy garu, Hon'ble Minister for Forest, Environment, Science & Technology, Government of Andhra Pradesh, Sri Pitani Satyanarayana garu, Hon'ble Minister for Arogya Sree, Health Insurance, 104, 108 & Medical Infrastructure, Government of Andhra Pradesh, Sri Kavuri Sambasivarao garu, MP, Eluru, Sri Kanumuru Bapiraju garu, MP, Narasapuram, Sri Eli Nani garu, MLA, Tadepalligudem, Sri K.Nageswararao garu, MLA, Tanuku, Sri Kottu Satyanarayana garu, Ex-MLA, Tadepalligudem, Sri Eathakota Tataji garu, Municipal Chairman, Tadepalligudem visited Andhra Pradesh Horticultural University, Venkataramannagudem, West Godavari District on 27th February, 2010.

A team of scientists from Nepal and Netherlands under Biodiversity Network project, Bangalore visited labs at HRS, Anantharajupet on 18-05-2010.



EVENTS OF ANDHRA PRADESH HORTICULTURAL UNIVERSITY 2009-10

Andhra Pradesh Horticultural University Formation Day Celebrations on 26th June, 2009





ADMINISTRATION BUILDING
Andhra Pradesh Horticultural University
Venkataramannagudem