



APHU

News

Vol. : 1

No. : 2

April, 2010

ANDHRA PRADESH HORTICULTURAL UNIVERSITY
Venkataramannagudem, West Godavari District - 534 101, Andhra Pradesh

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KNOW ABOUT EDIBLE FLOWERS

It is important to remember that edible flowers are only part of a diversification strategy. Most growers cannot make a living growing only edible flowers. Edibles are usually grown in conjunction with cut flowers, herbs, and speciality lettuces, in order to complement them and create opportunities for value-added products. Another thing to keep in mind when producing edible flowers is the importance of growing without chemicals, since the flowers should be free of any chemical residue. Organic growers have an edge, because the flowers-usually imported-available from commercial florists are often grown with heavy applications of pesticides. In fact, many imported cut flowers contain residues from pesticides ruled unacceptable for food production. Even flowers growing along the roadside may have been sprayed with pesticides and are not safe to eat.

Cultural requirements for edible flowers are similar to those of other floral crops. There are perhaps 100 types of common garden flowers that are both edible and palatable. Some of the more popular edible flowers includes viz., Bachelor button, Bee balm, Borage, Calendula, Chamomile, Chive flowers, Dandelion, Daylily, Dianthus, Hibiscus, Hollyhock, Impatiens, Lilac, Marigold, Mint, Nasturtium, Pansy, Roses, Sage, Squash blossom, Violet

Flowers are rich in nectar and pollen, and some are high in vitamins and minerals. For instance, roses-especially rose hips-are very high in vitamin C, marigolds and nasturtiums contain vitamin C, and dandelion blossoms contain vitamins A and C. Flowers are also nearly calorie-free.

Edible flowers should be picked as fully open flowers in the cool of the day, after the dew has evaporated. It is best to sample several flowers before harvesting. Flowers grown in different locations can have different tastes, because of different soil types, fertilization, and environmental conditions. Flowers may taste different at the end of the growing season and can vary from year to year. After picking, place long-stem edible flowers in water and store in a cool place. Layer short-stem flowers between damp towels or store loosely in a plastic bag and refrigerate. Wash and check for insects before using. It is best to wash just a few flowers first to make sure they don't discolor. Never use floral preservatives on edible flowers. Many floral preservatives contain toxic chemicals, but the exact components are considered trade secrets.

Do not eat any flower unless you are certain about its identity. Even edible flowers can cause indigestion or allergic reactions if eaten in large amounts. Some of the highly toxic flowers are azaleas, belladonna, calla lily, castor bean, crocus, daphne, fox-glove, larkspur, lily-of-the-valley, nightshade, and rhododendron.

As with any crop, it is extremely important to decide on a marketing strategy before you plan. Edible flowers are produced and marketed in much the same way as fresh herbs, although the edible flower market is not as large. Edible flowers are used by chefs as garnishes, in salads and desserts, and for drink and candy adornment. Do a careful market assessment before proceeding, concentrating on upscale restaurants in the largest urban center nearest you.

To recognize the unique opportunities that may provide entry into this market, the grower must keep up with food trends. Talking to local chefs will acquaint you with their needs. Most restaurants demand a consistent supply of any crop, but many edible flowers can be used interchangeably. Get in touch with a local chefs association or state restaurant association. Reading magazines such as Gourmet, Bon Appetit, and Food and Wine is another way to gauge the competitive environment.

Since many people are unfamiliar with using edible flowers, it is always a good idea to provide free samples and recipes. Remind your customers that edible flowers mixed in summer salads create unique colors and tastes. Often, customers will use these flowers for special events, placing crystallized violets on wedding cakes, for example. It is up to the grower to remind consumers of these special uses. As for pricing, the grower must decide what the market will bear. Value-added products, like mesclun mixed with calendula flowers, can generate excitement in the consumer and added income for the grower.

S.D.SHIKHAMANY
VICE-CHANCELLOR





IN FOCUS

APPLICATION OF BIOTECHNOLOGY IN HORTICULTURAL CROPS

BIOTECHNOLOGY offers a vast potential in Horticulture. The most important strategy genetic improvement of Horticultural crops which will help in the development of processing industries. Production of secondary metabolites like flavours, pigments and perfumes as by-products of tissue culture industry will gain momentum. Biotechnological approaches can also be used for increasing the shelf-life of vegetables and fruits.

Biotechnology in Seed production and Planting material propagation

Micropropagation-Tissue culture : Miniaturized *in vitro* multiplication of plant material under aseptic and controlled artificial conditions, also known as micropropagation, has been used for decades to speed up the propagation process for several vegetatively propagated crops. The plant micro-propagation technology allows production of a large number of plants in a relatively small growing area, and in a short time, with a high degree of clonal phenotypic uniformity and absence of disease. This is the case for fruit trees (e.g. banana, date palm), roots and tubers (e.g. potato, cassava), vegetables (e.g. strawberry, asparagus), and ornamentals (e.g. roses, orchids).

Somatic embryogenesis : Somatic embryogenesis, a variation of micropropagation (where embryos are directly regenerated instead of shoots and roots), is being used widely for oil palm. These "artificial seeds" would have been planted and treated as seeds. Potential benefits would have been tremendous from a plant breeding, seed production and seed treatment point of view. However, technical and economic constraints have not allowed commercial development of this technology.

Biotechnology in plant breeding

Doubled haploids : Using *in vitro* techniques, it is possible to regenerate plants from pollen or ovules. These plants, which contain only one copy of each chromosome, are called haploids. They are not viable. After appropriate chemical treatment, it is possible to restore the normal number of chromosomes and to regenerate viable plants. These plants, called double-haploids, are homozygous for all their genes. Such plants are of tremendous interest to plant breeders, since they allow development of pure line varieties or inbred parental lines much more quickly than through conventional breeding. Androgenesis (regeneration from pollen) has been successfully used for crops such as eggplant and pepper.

Marker-assisted breeding : Markers may be either phenotypic or genotypic, and marker-assisted breeding developed in the 1980s with the evolution of DNA marker technologies. Today, the main DNA markers used in breeding programmes are Random Amplified Polymorphic DNA (RAPD), Amplified Fragment Length Polymorphism (AFLP), microsatellites, and Expressed Sequence Tags (ESTs). Each of these markers has a different set of advantages and limits. Cost and possible automation of the techniques are of particular importance for their adoption. Use of molecular markers, in association with linkage maps and genomics, offers plant breeders the potential to make genetic progress much more precisely and rapidly than through phenotypic selection.

Embryo culture : Breeders need access to the largest possible genetic variability. In some cases, variability available within a given species is not sufficient to answer a specific problem (e.g. resistance to some new disease). A solution available to breeders is inter-specific hybridization (crossing plants from separate but related species). However, embryos resulting from such hybridization rarely survive, due to incompatibilities between the embryo and the mother plant. Saving embryos is sometimes possible through their *in vitro* cultivation, which make it possible to isolate the inter-specific embryo from the hostile mother plant environment. This technique has been used for the introduction of disease resistance into squash, lettuce, tomato, etc.

Protoplast fusion : Fusion of protoplasts is another technique to allow inter-specific hybridization between species that cannot be crossed through conventional breeding, even using *in vitro* embryo rescue. This technique has been used to introduce traits such as disease resistances in potato. Similarly to embryo rescue, this technique will most probably be replaced by transgenesis, which is a faster, more effective and more precise technique.

Transgenesis : Transgenesis (also called genetic transformation or genetic engineering) is the most recent step to increase genetic variability available within a crop. Transgenesis aims to introduce, through different techniques, a specific gene (included in a gene construct) from a donor species into the genome of a host species. Organisms resulting from transgenesis are commonly called Genetically Modified Organisms (GMOs). Transgenesis is being used to introduce a broad range of new agronomic, processing and nutritional traits into the main agricultural and vegetable crops. In comparison to embryo rescue and protoplast fusion, transgenesis is not constrained by reproduction barriers. Genes can be transferred from one realm into another. Moreover, only the specific gene construct is introduced in the host organism. This provides great precision and rapidity to the enhancement process. Transgenesis is a very promising tool for the development of new varieties with specific traits that are not present within the crop gene pool.

Biotechnology in detection of diseases transmitted by seed or planting material

Two methods are being more and more used for detection of diseases transmitted by seed and planting material:

- ELISA (Enzyme Linked Immunosorbent Assay) is a widely used technique based on an antibody-antigen reaction, and used for diagnostic determination of the presence of specific molecules in a sample.
- PCR (Polymerase Chain Reaction) is a technical procedure that amplifies and makes it possible to detect a specific piece of DNA.

Meristem culture : In the absence of genetic resistance within the gene pool, meristem culture has been widely used to transform these cultivars into healthy cultivars, free from diseases. The principle is that a meristem (the apical part of a stem) is normally free from diseases. If a meristem is taken from a contaminated plant and is grown *in vitro* under appropriate conditions, it will regenerate a plantlet that will be disease-free. This plant can then be propagated either *in vitro*, or *in vivo* under strictly controlled conditions, to ensure production of healthy planting material. This technique has been widely used for decades on many vegetatively propagated crops and is still used to regenerate some contaminated cultivars. Its association with disease detection methods such as ELISA or PCR techniques makes it a very powerful tool to ensure propagation of healthy planting material.

Biofertilizers : Genetic manipulation through biotechnology to develop more efficient strains of nitrogen-fixing and phosphorous-solubilizing microorganisms is likely to increase biofertilizer efficacy. The VA mycorrhizal association in horticultural crops is also now known. In papaya, citrus, mango, banana and pomegranate, VAM fungi can be effectively inoculated with beneficial effects. Standardization of quick detection techniques of more efficient strains of beneficial microorganisms for biofertilizer use seems to be possible. The PCR amplification technique to identify different genera of VAM fungi has already been standardized.

Biopesticides : Development of transgenic potato expressing Bt toxin for resistance to potato tuber moth has been attempted at the CPRI, Shimla. Similarly, development of a sporeless mutant of *Btsubsp. kurstaki* (Btk) has been claimed by the IIHR, Bangalore. The insecticidal toxins from the mutants are toxic to diamond back moth in cabbage. Commercial formulation of Bt is now available to control a number of insect pests in different horticultural crops. Development of transgenics expressing Bt insecticidal toxin is likely to receive greater attention in horticultural crops.

Postharvest biotechnology : Application of genetic engineering in postharvest biotechnology is slowly taking shape and cloning of genes paved the way for creating plants with delayed ripening in fruits. The transgenics in tomato and apple with inhibited ACC synthase gene expression have been developed with delayed ripening and prolonged shelf-life. Postharvest losses due to pathogenic infection can also be prevented through cloning of genes that confer resistance.





NEWS & EVENTS

APHU NEWS released

First issue of APHU NEWS was released by Dr.S.D.Shikhamany, Hon'ble Vice-Chancellor, APHU on 1st February, 2010.



APHU has become a member of IAUA

Executive committee of Indian Agricultural Universities Association (IAUA) has approved Andhra Pradesh Horticultural University as 51st member of IAUA w.e.f. 1st March, 2010, in its meeting held on 1st March, 2010 at ANGRAU, Hyderabad.

Meetings in APHU

APHU 2nd Research and Extension Council (REC) meeting was held on 9th February, 2010 at Teachers' Home, Boiguda, Hyderabad.

APHU 5th Academic Council meeting was held on 10th February, 2010 at Teachers' Home, Boiguda, Hyderabad.



APHU 20th Board meeting was held at APHU premises, Venkataramannagudem on 15th February, 2010.

APHU 21st Board meeting was held at Coconut Resort Valley, Dindi Resorts on 19th March, 2010.

EDUCATION

Students visited Horticultural nurseries

Students of 2nd year B.Sc. (Hons.) Horticulture, College of Horticulture, Venkataramannagudem visited Sri R.Sundaramaraju Horticultural nursery and garden at Itukalagunta village on 22nd Jan, 2010.

Republic day celebrated at College of Horticulture, Venkataramannagudem

Dr.S.D.Shikhamany, Hon'ble Vice Chancellor, APHU hoisted the National Flag on the occasion of Republic day on 26th January 2010.



RESEARCH

HRS, Aswaraopet

Gherkins:

Cassata is performing well at HRS, Aswaraopet





Grape

Wine grape varieties i.e Cabernet sauvignon, Shiraz, Sauvignon blanc & Chenin blanc grafted on the DogRidge rootstock in the months of October & November 2009 found successful to an extent of 80 percent and flowering and fruit set was noticed in Shiraz variety.

HRS, Anantharajupet

Passion fruit grafted plants (Variety, Kaveri) started flowering 5 months after planting and in some plants fruiting was also noted.



Broccoli under 35% shade produced curds early (Average curd weight-428g and average curd diameter-21.6cm) compared to 50% and 75% shade.



Emamectin benzoate treatment against Mango leaf Webber recorded less number of webs.

Hopper population monitored regularly and the population receded in the first week of March.

TRANSFER OF TECHNOLOGY

Kisan Melas

An awareness programme on “Coconut leaf beetle” by Dr. R.J. Rabindra, Director, NBAII, Bangalore at HRS, Ambajipeta on 8th March, 2010 for the benefit of Scientists, Departmental Officers & Progressive farmers

Crop seminar on Chillies “Mirapa pai avagahana sadassu” organized at HRS, Lam, Guntur on 22nd February, 2010.

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



HRS, Aswaraopet

Front line Demonstrations

Nine Front Line Demonstrations on improved technologies in various Horticultural crops were conducted in the farmer’s fields of Aswaraopet, Dhammamet, Sathuapally, Palvoncha & Vemsoor mandals of Khammam District.

HRS, Aswaraopet

Front line Demonstrations

Nine Front Line Demonstrations on improved technologies in various Horticultural crops were conducted in the farmer’s fields of Aswaraopet, Dhammamet, Sathuapally, Palvoncha & Vemsoor mandals of Khammam District.



Radio talks / TV programmes

Date	Topic	Speaker
5.1.2010	Fertilizer management in Banana	Sri M.Ravindra Babu, Scientist (Hort)HRS, Aswaraopet
6.1.2010	Mamidilo Sasyarakshnana	Dr. N.B.V.Chalapathi Rao , Senior Scientist (Ento) & Head, MRS, Nuzvid
13.1.2010	Cassava production technology	Dr.G.Ramanandam Senior Scientist (Hort)HRS, Peddapuram
15-1-2010	Plant Protection in grapes	Dr. A. Ranga Reddy, Principal Scientist (Ento.) & Head, GRS, R'nagar
19.1.2010	Fertilizer management in Papaya	Sri D. Lakshmi Narayana Scientist (Hort), HRS, Aswaraopet
19.1.2010	Jeedimamidi Pootha, Kapudasalo Theesukovalasina Jagrattalu	Dr.G.Ramanandam Senior Scientist (Hort) HRS, Peddapuram
21-1-2010	Drakshalo Adika Digubadulaku HarmonulaVadakam	Dr. D. Manohar Prasad Senior Scientist (Hort.) GRS, R'nagar
24-1-2010	Drakshalo Tegulla Nivarana	Dr. G. Ram Reddy, Scientist (Plant Patho.) GRS, R'nagar
25.1.2010	Selection of quality planting material in cassava and its storage	Dr.G.Ramanandam Senior Scientist (Hort)HRS, Peddapuram
5.2.2010	Mamidi putha, pindha dashalo teesukovalasina jagrathalu	K.Venkata Lakshmi, Assistant Professor, COH, R'nagar
6.2.2010	Benda saagu- patinchavalasina melakuvalu	Dr.M .Padma, Associate Professor , COH, R'nagar
7.2.2010	"Samvatsaram podavuna jeevanopadiki Banthi pula sagu".	Smt. C. Madhumathi, HRS, Anantharajupet
8-2-2010	Drakshalo Sasya Rakshna-Egumathulaku Patinchavalasin Melakuvalu (Radio lesson)	Dr. A. Ranga Reddy Principal Scientist (Ento.) & Head, GRS, R'nagar

Date	Topic	Speaker
12.2.2010	Maturity indices and precautions to be taken while harvesting Tapioca tubers	Dr.G.Ramanandam Senior Scientist (Hort)HRS, Peddapuram
13. 2.2010	Harvesting and preservative techniques of chilli	Mr.R.Preetham Goud, Assistant Professor, Horticultural Polytechnic, Madakasira
14.2.2010	"Pandlathotallo Samagra kalupu yagamanyam"	Kum. K. Lalitha, HRS, Anantharajupet
15.2.2010	Mulching Techniques	Dr.M.Ramakrishna, Vice-Principal, Horticultural Polytechnic, Madakasira
18.2.2010	Phone – in – Live Programme Question & Answers of Horticultural crops. (Sapthagiri – D.D-8 Channel)	Dr. B. Srinivasulu, HRS, Anantharajupet
18.2.2010	"Pandlathotallo patra visleshana vivaralu"	Sri G. Srinivasa Rao, HRS : Anantharajupet
18.2.2010	"Shadenetlalo Kuramirapa sagu".	Smt. Syed Sadarunnisa, HRS, Anantharajupet
24.2.2010	Control measures on Micro Nutrient deficiencies in Banana	Sri M.Ravindra Babu, Scientist (Hort)HRS, Aswaraopet
24.2.2010	Kharbuga and puchha sagu	Dr. B. Srinivasulu, HRS, Anantharajupet
6.3.2010	Mamidi kotha mundu, taruvatha teesukovalasina Jaagrathalu	Dr. D. Srihari, Professor,COH, R'nagar
11.3.2010	Summer Care in Horticultural Crops	Dr.K.Subramanyam, Senior Scientist (Plant.Path) HRS, Anantapur
11.3.2010	Mamidilo prastutam tisukovalasina charyalu	Dr. N.B.V.Chalapathi Rao , Senior Scientist (Ento) & Head, MRS, Nuzvid
30.3.2010	Package of Practices of Water melon and Musk Melon	Dr. Natarajan Seenivasan, Senior Scientist (Hort.) HRS, Anantapur

GENERAL

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 of appreciation to NSS Students.

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, Venkataramannagudem on 26th January 2010.





1) "Horticulture Seva Hruday", a voluntary organization inaugurated on 26th Jan, 2010 at College of Horticulture, Venkataramannagudem.



2) Sri G. Bhaskar Rao garu, NSS State liaison officer inaugurated NSS Unit at COH, Rajendranagar on 9th February, 2010.



3) NSS Activities at College of Horticulture, Anantharajupet



4) Women's Day Celebrated at College of Horticulture, Rajendranagar

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.

NABARD team visited APHU

Dr. Maddi Sreenivasarao, AGM and Sri Spandana Joshi, Civil Engineer, NABARD, Hyderabad visited Andhra Pradesh Horticultural University, Venkataramannagudem on 22.03.2010.

Scientists of CTCRI visited APHU

Dr.T.Srinivas, Senior Scientist (Agrl. Economics), Dr.S.Ramanathan, Principal Scientist (Agrl. Extension), Dr.M.Anantharaman, Principal Scientist & Head, Dept of Sociology & Agrl.Extension of CTCRI, Thiruvananthapuram visited HRS, Peddapuram during 15th to 20th February, 2010.





HUMAN RESOURCE DEVELOPMENT

PROGRAMMES CONDUCTED

Book Exhibition at College of Horticulture, Venkataramannagudem

A Book Exhibition was arranged in the college campus in collaboration with the Research Co-Books and Periodicals Pvt. Ltd, New Delhi from 15th–17th Feb' 2009 for the benefit of students and the staff College of Horticulture, Venkataramannagudem.

Organized a Guest Lecture by Mrs. Linda Oliveira, Vice-President, Theosophical Society and Mr. Pedro Oliveira (Australia) on Karma and Dharma at College of Horticulture, Venkataramannagudem on 8.2.2010.

HRS, Anantapur

Dr. K. Subramanyam, Senior Scientist (Plant Pathology) conducted Training Programmes on "Good management practices against Bacterial Blight and other diseases and pests of Pomegranate" to the Horticulture officers and Field consultants of Dept of Horticulture of Anantapur Districts on 19-01-2010, on "Cultivation and Integrated management of pests and diseases with emphasis on Bacterial Blight in Pomegranate" to the farmers at N.R. Roppam village, Madakasira Taluk, Anantapur District on 23-01-2010 and on "Effective Orchard Health Management Schedule of Pomegranate with special emphasis on Bacterial Blight Disease" to the farmers at Penukonda, Anantapur District on 25-02-2010.

PROGRAMMES PARTICIPATED

College of Horticulture, Rajendranagar

Dr. S.S. Vijaya Padma, Associate Professor participated in training programme on "Awareness programme on Cultivation and Marketing of Medicinal and aromatically plants" on 27.01.2010.

Dr. M. Jayaprada, Assistant Professor participated in training programme on "Genomics & crop improvement Relevance and Reservations" on 25th to 27th March 2010.

College of Horticulture, Venkataramannagudem

Dr.K.Sasikala, Assistant Professor (Agronomy) has attended in 3 week National Training Course on "Enhancing Water Productivity in Agriculture" organized by ANGRAU during 17th Feb – 9th Mar, 2010 at Water Technology Centre, College of Agriculture, Rajendranagar, Hyderabad.

HRS, Peddapuram

Dr.G.Ramanandam, Senior Scientist (Hort) & Head, participated and arranged an exhibition on 'Cassava value added products' at Yanam during XI Flower, Fruit and Vegetable show organized by the Dept. of Agriculture, Govt. of Puducherry from 6-8th January 2010 and also at Public Gardens, Hyderabad from 26-28, January 2010 organized by the Dept. of Horticulture, Govt. of Andhra Pradesh and participated as a resource person attended one day training programme being organized by the FTC, Peddapuram to farm women(50 nos.) under "Women Empowerment in agriculture" and imported training on "Value added products of Tapioca" on 29.01.2010

MRS, Nuzivid

Dr. N.B.V.Chalapathi Rao , Senior Scientist (Ento) & Head, & Smt D. Aparna Scientist (Hort) MRS., Nuzivid participated as resource persons in Rytu sadasu on " Maidilo sasya rakshna

padatulu "at Burugugudem on 12th January 2010, Rytu sadasu on Maidilo sasya rakshna padatulu "at Ponduluru, Mylavaram mandal on 23rd January 2010, in Mamidil sagu – Sikashna karyakramam at Nuzivid on 16th February, 2010, and in Rytu sadasu organized during Technology week at K V K, Garikapadu, ANGRAU on 23rd January, 2010.

TRS, Kammarapally

K.Umamaheswari, Scientist (Hort.) & Head participated in field day organized by the Department of Agriculture, Metpally division on Organic farming in Turmeric at Chintalpet village on 10th March, 2010.

HRS, Anantapur

Dr. K. Subramanyam, Senior Scientist (Plant Pathology) and Dr. Natarajan Seenivasan, Senior Scientist (Horticulture) participated in 'XV Group Worker's Meet of All India Coordinated Research Project on Arid Zone Fruits (AICRP-AZF)' Conducted at Horticultural College and Research Institute, TNAU, Periyakulam, Tamil Nadu from January 28–30th 2010 and participated in 'Kisan Mela' Conducted by Agricultural Research Station, Anantapur from 7th March, to 8th March, 2010 and in "Farmers Interaction Meeting" on "Management of pests and diseases of Sweet Orange, Mango and Watermelon" at Kalyandurg, conducted by Department of Horticulture, Anantapur on 15th March, 2010.

HRS, Aswaraopet

Sri D.Lakshmi Narayana, Scientist (H)&Head, HRS, Aswaraopet attended as Resource person on the aspect of Mamidilo Pootha, Pinde Dasalo Teesukovalasina Jagrattalu organized by Assistant Director of Horticulture, Horticulture Department Khammam at Kakarla, (Khammam Dist) on 08.03.2010

Sri M.Ravindra Babu, Scientist (H), has attend Hands on Training Programme on "Microbial Agents of Major Insect Pests and Diseases of Crops" from 16.02.2010 to 23.02.2010 at Directorate of Oils seeds, Rajandranagar, Hyderabad and as Resource person on the aspect of Mamidilo Pootha, Pinde Dasalo Teesukovalasina Jagrattalu organized by Assistant Director of Horticulture, Horticulture Department Khammam at Teldhar pally (Khammam Dist), Jamalapuram, (Khammam dist) from 27.02.2010 to 28.02.2010.

GRS, Rajendranagar

Dr.A.Ranga Reddy, Principal Scientist (Ento.) & Head, participated in a training programme on grape organized by Regional Horticulture Training Institute, Anantapur to the grape growers of Anantapur district on 22nd January, 2010.

HRS, Anantharajupet

Dr. B. Srinivasulu, Senior Scientist (H) & Head participated in Rythu sadassu at Gorantla, Ananthapur (Dist.) on 8th March, 2010 T & V workshop at ARS, Utukur on 29th January, 2010.

Smt. C. Madhumathi 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) & Head participated in Rythu sadassu at Gorantla, Ananthapur (Dist.) on 8th March, 2010 T & V workshop at ARS, Utukur on 29th January,





2010 farmers training programme on Chilli production Technology at Vaddemanu, Kasinayana (M) on 29th January, 2010.

Dr. B. Srinivasulu, Senior Scientist (H) & Head participated in Rythu sadassu at Gorantla, Ananthapur (Dist.) on 8th March, 2010 T&V workshop at ARS, Utukur on 29th January, 2010 awareness programme on Mango Cultivation at Chittoor on 17th February, 2010 and farmers training programme on Banana & Papaya production technology at NHTI, Utukur on 5th March, 2010.

Dr. D. Srinivasa Reddy 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.

Smt. C. Madhumathi participated in Kisan mela at KVK, Utukur on 24th, January, 2010.

LECTURES DELIVERED:

College of Horticulture, Venkataramannagudem,

Dr. D.R.Salomi Suneetha, Associate Professor delivered an invited lecture as Resource person in the UGC sponsored National Seminar on “Applications of Bioinformatics” held during 5th-6th January, 2010 organized by Dept. of Applied Sciences, CH.S.D.ST.Theresa’s Autonomous College For Women, Eluru.

HRS, Anantapur

Dr. Natarajan Seenivasan, Senior Scientist (Horticulture) delivered lecture on “Best Management Practices for cultivation of Vegetable Crops” to the farmers of Anantapur and Kurnool Conducted at Regional Horticultural Training Institute, Anantapur on 21-01-2010.

Dr. K. Subramanyam, Senior Scientist (Plant Pathology) delivered lecture on “Cultivation Practices of Papaya” to the farmers of Anantapur and Kurnool, district conducted by Regional Horticultural Training Institute, Anantapur on 05-03-2010.

Dr. Natarajan Seenivasan, Senior Scientist (Horticulture) delivered lecture on Package of Practices for cultivation of Water melon and Musk melons to the farmers of Anantapur and Kurnool Conducted at Regional Horticultural Training Institute, Anantapur on 11-03-2010.

Dr. Natarajan Seenivasan, Senior Scientist (Hort) presented a seminar on “Impact of Climate Change on Horticultural Crops” on the occasion of **Farmer’s Awareness Programme on Climate Change** on **World Meteorological Day** (23rd March) conducted at Agricultural Research Station, Anantapur.

HRS, Anantharajupet

Dr. B. Srinivasulu, Senior Scientist (H) & Head delivered Guest Lecture on “ Self employment opportunities in Horticulture Food Sector” at Department of Home Sciences, S.V. University, Tirupati.

CONSULTANCY / ADVISORY SERVICES

HRS, Anantapur

Dr. Natarajan Seenivasan, Sr. Scientist (Hort) along with District Water Management Agency (DWMA) officials visited villages in Bommanahal and Kanekkal mandal of Anantapur district on 08-02-2010 to diagnose the Sand Dunes and sand deposition problems on fertile lands, and submitted report to DWMA to takeup certain horticulture crops.

PUBLICATIONS

Venkatareddy, C. Suryakumary, S. Venkataramana, C. Rajani. A, Vijayalakshmi, T. Vijayalakshmi, P. Sarada, C. Giridhar, K. 2010 – Technical bulletin on chillies. (Telugu). HRS, APHU, Lam, Guntur. Pp. 15.

Umamaheswari, K. Scientist (Hort.) & Head, HRS, Kammarapally. Pusupulo travakam Anataram Chepattavalasina –Jagrathalu. Eenadu Rythe Raju-10.03.10

Umamaheswari, K. Scientist (Hort.) & Head, HRS, Kammarapally. Vitthana Pasupu empika-Nilvalo Jagrathalu. Eenadu Rythe Raju-15.03.10

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.

Seetakalamulo Drakasha ki Aasinche Cheeda peedalu – by Dr. G. Ram Reddy, Rythu Nestam, February-2010, P: 19-20.

PERSONNEL

Honours/Awards:

Dr. K. Subramanyam, Senior Scientist & Head, HRS, Anantapur was awarded Merit Certificate for his commendable service to the pomegranate growers from Collector and Magistrate of Anantapur district on Republic Day function on 26-01-2010.

Promotions & Transfers:

Dr.K.V.Seshadri, Associate Dean, College of Horticulture, Venkataramannagudem is appointed as Director of Extension, APHU with effect from 5th March, 2010.

Dr. K.Uma Jyothi, Professor is transferred from College of Horticulture, Anantharajupet to the College of Horticulture, Venkataramannagudem, W.G.Dist., and reported on 11th March, 2010.

Superannuation

Sri M. Ganapathi Rao, AEO, HRS, Aswaraopet retired on 31st January, 2010.



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Post Box No.7, Tadepalligudem-534 101, W.G.Dist., A.P.

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