PROCEEDINGS OF VARIOUS CROP SCIENTISTS MEETS HELD DURING 2014

The following are the remarks based on the deliberations during various crop scientists' meets held during 2014. The Technical Directors/Deans are requested guide suitably the scientists working in the identified areas of specialization for implementing the same.

32nd Scientists' Meet - Millets and Forage crops held on 3.4.2014

- Following the nomenclature of PYR instead of KRI/DPI for the cultures developed from RRS, Paiyur.
- Assessing the lignin content in germplasm materials of varagu for establishing its role in culm strength.
- Developing uniform and synchronized maturing varieties in small millets especially in ragi to ease harvesting.
- Breeding short duration samai varieties which can be used as fodder as well.
- Establishing nutritional values of all the minor millets and further improvement by value addition.
- Assessing Hydrogen Cyanide (HCN) content at various stages in multicut-sorghum varieties/cultures.
- Chettinad centre to focus on evaluation and evolution of improved cultures in varagu and kudhiraivali.

50th Scientists' Meet - Oilseed crops held on 8.4.2014

- Evaluating the potential of groundnut as an intercrop in sugarcane.
- Evaluating the possibility of using organic mulches in groundnut.
- Assessing importance of sulphur in rainfed groundnut cultivated in red and black soils of Tamil Nadu.
- Developing a multifunctional bio-inoculant (*Burkholderia* sp) for groundnut.
- Altering crop geometry to suit mechanical weeding in oilseeds.
- Optimization of sulphur requirement to sesame genotypes using tracer techniques.
- Evolving seed pelleting technology for facilitating mechanized sowing and assessing its storage potential in sesame
- Evaluation of different weed management strategies including mulching technique in castor.
- Developing AMF as a bio-fertilizer for castor.
- Developing package of practices for pulse – oilseed cropping system.
- Standardization of seed invigouration treatment for seed quality enhancement in groundnut.

- Optimizing nutritional requirement of confectionery sesame using bio/natural inputs.
- Evolving crop management practices for synchronized maturity and mechanical harvesting in castor.
- Development of Integrated Disease Management (IDM) strategies (including bio/natural inputs) for major diseases of groundnut.
- Yield loss assessment in castor under varied agroclimatic conditions.
- Development of management strategies for wilt (*Fusarium oxysporum* f.sp.*ricini*) and reniform nematode (*Rotylenchulus reniformis*) in castor.
- Understanding mechanisms of host plant resistance to various pest and diseases in major oilseed crops.

22nd Scientists' Meet - Sugarcane held on 11.4.2014

- Development of sugarcane harvester to satisfy the needs of Tamil Nadu farmers.
- Revival of tissue culture works in Sugarcane for the production of disease free materials.
- Identification of sugarcane materials with increase intermodal length and evolving suitable management practices for chewing cane.
- Understanding the role of Arbuscular Mycorrhizal (AM) Fungi in the medium for better seedling vigour in chip bud method of seedling production.
- Standardizing the pH of the spray solution after adding wetting agent along with Pink Pigmented Facultative *Methylobacterium* (PPFM) in spray solution.
- Monitoring the movement of sugarcane woolly aphid from adjoining states especially from Chittur region of Andhra Pradesh and assessing the impact of population density on the sugarcane yield under varied climatic conditions.
- Analyzing the residue both in cane and juice for the optimization of pestigation through drip system.
- Identification of causal agent (phytoplasma/Leuteo virus as reported) for Sugarcane Yellow Leaf Syndrome and establishing its mode of transmission.

33rdScientists' Meet - Rice held on 16.4.2014

- Evaluating the extra-early genotypes collected from different places under direct sown condition. The genotypic responses across environments to 50% flowering, maturity, grain yield (kg/ha) be studied.
- Utilizing basmati varieties like Pusa 1121, Pusa 1509 as one of the parents in hybridization programme for quality improvement and for attaining desirable lengthwise elongation.
- Evolving non-aromatic long grain varieties suitable for export.

- Utilizing the advanced rice cultures with good grain quality for line conversion (A/B line) in hybrid rice breeding programme.
- Exploiting land races for nutritional and medicinal properties.
- Identifying new sources of resistance for pests and diseases and sharing them across all breeding centres.
- Avoiding the use of BPT 5204 in the breeding programmes as this variety is known for its susceptibility to all major diseases.
- Utilizing advanced elite cultures to incorporate genes for specific traits *viz*., submergence tolerance, salt tolerance and resistance to blast, bacterial lead blight and gall midge provided the cultures are deficient in the above traits.
- Quality analysis of MLT cultures of rice may be taken up at Coimbatore during 2014-15. The ART cultures need to be analysed for quality at Coimbatore, Aduthurai and Madurai.
- Evolution of materials with increased culm strength to suit the machine transplanting in rice.
- Evolving suitable agronomic packages for producing sturdy rice seedlings amenable for machine transplanting.
- Perfecting the Alternate Wetting and Drying Irrigation (AWDI) practice in rice.
- Exploring the possibilities of raising rice under unpuddled condition during kuruvai season and evolving contingent crop plan for kuruvai season in Cauvery delta zone.
- Cultivating aerobic rice under tank fed irrigated condition.
- Yield maximization of traditional rice cultivars through management techniques.
- Residue management and nutrient dynamics in combine harvester operated rice fields.
- Development and evaluation of stage-specific microbial inoculants.
- Mapping and management of Zinc deficiency in rice growing soils of various districts in Tamil Nadu.
- Evolving management strategies for alleviating Iron toxicity problem in rice under acid soils.
- Recommending only the TNAU validated IPM practices.
- Sending samples of pests and natural enemies collected from individual projects to the Professor and Head, Department of Agricultural Entomology, TNAU, Coimbatore for insect museum use.
- Exploring strategies for containing yellow stem borer and false smut incidences in rice.
- Evolving management strategies for rodent menace in rice ecosystem.
- Intensifying the studies on understanding the mechanisms of resistance to major pests and diseases of rice.

32nd Scientists' Meet - Cotton held on 6.5.2014

- Attempting physiological manipulations for more boll load with synchronous boll development and boll bursting.
- Exploring possibilities for mechanization of cotton harvesting by designing a suitable cotton picking machine.
- Addressing the problem of soil hardening in holes while using augers for the transplantation of cotton seedlings.
- Including cover crop like cowpea in weed control experiments of cotton as one of the treatments.
- Growing same variety/hybrid with common set of treatments in all the centres in the net work agronomy experiments for arriving at more valid results.
- Mulching with crop residues instead of biochar as it does not have universal positive effect. Some biochars may have adverse effects on plant growth and not all soils respond to biochar additions in the same way.
- Strengthening the monitoring and forewarning of insect pests and diseases of cotton.
- Diagnosis and confirmation of viral and phytoplasma diseases in cotton.
- Studies on compatibility of *Bacillus subtilis* with imidachloprid and other insecticides.
- Confirming host plant resistance under artificial conditions in addition to field screening.

32nd Scientists' Meet - Pulses held on 7.5.2014

- Utilizing BSR 1 redgram as a donor in crossing programmes for evolving long duration varieties.
- Exploring the genotypic responses for redgram transplantation and establishing the differences between the transplanted redgram and seed sown redgram for their performance, root parameters and economics with and without micro-irrigation.
- Evolving short duration redgram varieties with synchronous maturity.
- Intensifying research in virology and bacteriology for containing the diseases in pulses. Virologists at Coimbatore are requested to screen the entries for MYMV resistance in the hotspot.
- Blackgram cultures developed at the ARS, Pattukottai are to be transferred to NPRC, Vamban for further evaluation and advancement.
- Assessing the nutritional aspects all the pulses should be a priority research area.
- Screening blackgram materials for powdery mildew resistance and synchronized maturity under rice fallow situation.
- Cowpea materials developed at RRS, Aruppukottai be transferred to AC&RI, Madurai for further follow-up studies.

30th Scientists' Meet - Horticulture on 22.4.2014

I. Fruit Crops

- Developing red fleshed less seeded guava types.
- Strengthening the research on Manila tamarind.
- Studying the root architecture or root training in fruit crops and their effect on canopy management in high density planting systems.
- Studying the adoption of "Y trellis" system in grapes.
- Addressing the problem of uneven ripening and maturity in grapes variety pannier.
- Mass multiplication and maintenance of traditional varieties of strawberry at Coonoor.
- Test verifying the better performing apple varieties of Himachal Pradesh at Ooty and Kodaikanal.
- Mass propagation in Durian to increase the availability of planting material
- Attempting strawberry cultivation under plastic tunnel.
- Taking up performance evaluation and canopy management in Apricot.
- Initiating protected cultivation of hill banana.
- Identifying jack varieties with high carotene content and introduction of Verpala from Kanyakumari in other identified research stations.
- Jack germplasm collection at HC & RI, Periyakulam may be duplicated and evaluated at VRS, Palur also.
- Initiating research on wood apple collection, evaluation and storage methods.
- Feasibility of cultivating pomegranate on commercial scale in Tamil Nadu.
- Studying the effect of liquid formulation of bio-fertilizers and bio- control agents on fruit crops.
- Evaluation and development of value added products from sapota.
- Initiating studies on the availability of various proteolytic enzymes in fruits and leaf extract.
- Assessing the chemical and biochemical constituents responsible for flavor and nutritional qualities in different mango varieties.
- Initiating studies on carbon budgeting in mango.
- Carrying out the research work on subtropical and temperate fruit crops at HRS, Thadiyankudisai, Kodaikanal and Ooty.

II.Vegetable Crops

- Evolving thornless types from the Vellore local Mullukathiri.
- Collecting brinjal and chilli materials from Kanyakumari district and adding to the germplasm.
- Evolving ash gourd varieties with smaller fruits.
- Assessing the variation in seed content of the accessions in pumpkin since the pumpkin seeds are used as food.

- Development of pumpkin accessions with hull-less seeds.
- Intensifying the research on the development of hybrids in bitter gourd and watermelon.
- Evolving short duration aggregatum onion and assessing the biochemical compounds responsible for flavor.
- Concentrating research on French beans at HRS, Thadiyankudisai.
- Assessing the cartoene content of the identified high yielding elephant foot yam cultures.
- Evaluating the potential of cluster bean culture IC432117 under Adoptive Research Trial (80 numbers).
- Assessing the amaranthus AP12 culture for quality, consistency in performance and be proposed for MLT thereafter.
- Confirming the species status of the salad type bottle gourd with Botanical Survey of India.
- Assessing the relationship between trichome density in bhendi leaves and YVMV resistance.
- Assessing the thickness and degradability of the polythene mulches in vegetable cultivation.
- Identifying bio-pesticides for controlling pests in small onion and black pepper.
- Studying the effect of fermented form of notchi leaves extract on the control of pests in vegetables.

III. Spices and Plantation Crops

- Adding the black turmeric in the germplasm and evaluating its chemical properties.
- Intercropping studies on ginger and multi-cropping including cumbu napier in coconut grooves.
- Research on development of coriander variety suitable for multi-clipping.
- Evaluating the best performing clove accession SA -3 and its furtherance.
- Assessing the marketability of sweet tamarind.
- Collection of yellow types in palmyrah and its addition to the germplasm.

IV. Floriculture and Landscapping

- Studies on year round production of jasmine through pruning and chemical regulation.
- Introduction of colourful flowering annuals like *Petunia*, *Phlox*, Aster, *Zinnia* etc. in Botanical Gardens.
- Contacting the Institute doing research on "Fragrance" at Mumbai for future research on essential oils in flowers.
- The aromatic crops *viz*., Dhavana, Marvu/Marikolundu be introduced in Botanical Garden, Coimbatore.

- Under Hi-tech floriculture, use of LED lights may be explored especially in *Chrysanthemum*.
- In post harvest experiment on flower crops, use of hydroxy methyl group compounds and ethylene glycol compounds may be avoided. Instead, cellulose based compounds may be tried.
- In dry flower experiments, for dyeing, Rhodomine dye which is toxic in nature is to be avoided.

V.Medicinal & Aromatic Crops

- Further evaluation of the promising selections of Manathakkali (*Solanum nigram*) for yield and quality.
- IPDM strategies for *Solanum nigrum* may be developed.
- Descriptors be developed for the germplasm of Venkodiveli (*Plumbago zeylanica*).
- Identifying promising genotypes for high yield and plumbagin content.

24th Scientists' Meet - Forestry and Biofuels (5th) held on 11.4.2014

- Conducting the annual review meeting for the consortium partners and completion of registration.
- Identifying perennial fodders for protein substitution and carrying out digestibility studies using artificial rumen.
- Evaluating the values of native tree species such as Poovarasu, Vagai, Pala and Palmyrah for various situations.
- Carrying out studies on CO_2 fixation and emission by different tree species.
- Conducting studies on the preparation of wood powder and particle board from different sources.
- Comparing the indigenous wood seasoning techniques with the latest techniques.
- Conducting studies on management of pests during the storage of sandal wood (Sathyamangalam sandal wood depot by obtaining permission).
- Evaluation of *Mangifera indica* based Horti-silvi pasture system in already existing mango orchards in farmers fields and TNAU farms.
- Assessing the photosynthetic rate through leaf disc method in different tree species.
- Reorienting the forestry research by reconfiguring the departments and through strengthened basic research programme in the identified disciplines.
- Experimental studies in marine salt water in Thiruvarur district with different forest tree species.
- Establishing biomass plant for electricity generation to achieve self sufficiency at FC&RI.
- Maintenance of tree record for all the trees.

- Initiating research on tree crops/shrubs other than *Eucalyptus* and *Casuarina.*
- Collecting progenies of *Eucalyptus* species from AC&RI, Madurai (near Chittankulam tank) and its evaluation.
- Assessing the soil fertility level under varied agroforestry situations.
- Studies may be taken up on selection of suitable tree species giving more O_2 such as *Salacia malabarica* etc.
- Forming farmers' society for carbon trading.
- Undertaking studies on root pruning and root training.
- Undertaking adoption studies with respect to varieties released from FC&RI and its suitability for seven agro climatic zones of Tamil Nadu.
- Including studies relating to algal contribution on carbon sequestration.
- Screening tree species for deodorizing the smell emanating from industrial sectors.
- Entomological works on pungam gall borers in pod.
- Revival packages for damaged trees.
- Dissemination of timber price to farmers.

Theme Based Research Areas meet held on 10.5.2014

Centre for Plant Protection Studies

I. Insect Taxonomy

- Molecular taxonomy work can be undertaken in addition to conventional one.

II. Apiculture

- Training the entomologists working in TNAU research stations in Kanyakumari district on bee disease diagnosis and management.
- Analysing the role of honey bee in pollinating grapevine and *Gloriosa* crops.
- Feasibility studies of providing skep hood over Indian beehive, bee feeder and mini honey extractor at our research stations.

III. Sericulture

- Screening of new entries/varieties of mulberry for their suitability to Tamil Nadu condition.
- Intensifying the studies to explore the potential of silkworm gut micro flora for immune mechanism and higher silk productivity.

Centre for Crop Management

I. Agro Climate Research Centre

- The validity of the models developed elsewhere for our condition is to be critically assessed. Our own models need to be developed.

II. Agronomy

- Inclusion of flower crops under crop component of IFS.
- Visiting farmers IFS holdings near Tirunelveli (Mural fish farming), developing a comprehensive package for them and value addition of amla products near Thanjavur.
- Visiting the sites where IFS models suggested by TNAU are being implemented in Villupuram District and observing the progress for extrapolating to other Districts.
- Utilization of solar power under IFS for lighting, cooking and lifting water and developing energy saving IFS models.
- Integration of protective agriculture with animal components.
- Modelling studies on IFS to suit changing farming situations.
- Identification of suitable fodder crops for goat component in IFS.
- Nutrient recycling studies under IFS in marginal farm holdings.

Centre for Natural Resource Management

I. Environmental Science

- Identifying hot spots in major river flowing areas in Tamil Nadu and monitoring the pollution load continuously.
- Composted sewage sludge is a good source for nutritive value. Major nutrients preferably phosphorous be extracted from sewage sludge and converted into commercial product for farmers use to reduce the fertilizer consumption.
- Extraction of plant growth promoting substances from industrial waste water for farmers use.
- Exploring the funding by Neyveli Lignite Corporation, Neyveli for taking up research on various Environmental issues.
- The scientists working on industrial waste water application for agriculture should work on humification index and carbon addition in the soil through waste water usage.
- Inclusion of the Piezometer and Lyzimeter recordings in TEWLIS study area.
- Preparation of a nutrient rich protray mixture from industrial sludge and agro industrial waste for raising seedling for different crops.

- Recovering potassium from spent wash and humate from agro industries waste water for agricultural purpose.
- Exploring the reasons for nitrate contamination in Thirupur area.
- Joint studies with Forestry scientists to contain odor in industrial corridor by selecting suitable trees and shrubs.
- Working out *in situ* composting process for degrading harvested paddy straw and sugarcane trash in association with microbiologists.
- Devising a small house hold composting method for composting vegetable waste generated from kitchens.
- Evaluating the vermicomposting process using paper industries sludge from the paper mills functioning in Thirunelvelli district.
- Mapping the east coast stretch of Tamil Nadu for providing green corridor by planting suitable trees and grasses for eco preservation.
- Continuous monitoring of pollution in the hot spot areas of 32 districts of Tamil Nadu and its documentation.

II. Remote Sensing and GIS Applications

- Making available the findings and the fertility maps so far generated for use by policy makers, scientists, extension workers and farmers.
- Verifying the deficiency of micronutrients in Ramanathapuram, Madurai and Sivaganga districts which is on the raise from 1976-2005 assessment to 2005-2013 assessment.
- Creation of thematic maps on various soil fertility parameters at the earliest using the data received from DOA and should be made available for users by linking with FCMC server of Department of Agriculture.
- Assessing the present coconut area as in recent years many coconut gardens were destroyed due to severe drought and conversion to non agricultural activities.
- It is advised to relook the rice area in Sivagangai district, since the land use changes are very frequent in this district. The national land use policy document may be refereed while reporting rice area for these districts.
- Evolving suitable drought index and working out water requirement of different crops based on Normalized difference vegetative index (NDVI) map which has to be compared with drought forecast data of National Agricultural Drought Monitoring System of NCFC and validated with ground meteorological data.
- Correlating the collected spectral data with chlorophyll content and nutrients of the identified crops and developing new spectral indices to predict the nutrient deficiency.
- Identifying and validating specific bands or band indices that would help in understanding the stress due to nitrogen and water.
- Utilizing the NDVI and Red edge position for understanding and appreciating its utility in discriminating various pests under varying field conditions and varieties.

- Correlating the spectral data with Munsell soil colour value for predicting its accuracy.
- Working in collaboration with the scientists of the Department of Environmental Sciences and ACRC on relevant projects.

III. Nanoscience and Technology

- Alternate approaches like encapsulation, size reduction be attempted instead of using nanocarrier for loading the nutrients.
- Undertaking detailed study for dissecting the mode of action of nanoparticles in enhancing the seed quality.
- Ascertaining the size of deactylated chitosan in the anti-transpirant nanoformulation.
- Exploring the role of nanoparticles in entomology other than insect pheromones.
- Initiating study on managing the stored product pest using nanoparticles.
- Investigating the role of hexanal in extending the shelf life of mango at molecular level.
- Enhancing the extraction efficiency of the antimicrobial compound for edible coating.

IV. Soil Science & Agrl. Chemistry

- Maintaining the plots and its boundaries, adopting appropriate tillage operations to avoid mixing of soil from different plots in PME / LTFE.
- Changing the treatment structure in the PME (>100 year old) of Coimbatore would defeat the very purpose of conducting PME. Atleast in the recently laid LTFEs, an uniform treatment structure is to be maintained.
- Status of secondary nutrients is to be estimated and included in reports.
- There are changes in available and total nutrient status in the experimental plots over years due to nutrient management, cropping system, agro-climatic influence in the PMEs located all over Tamil Nadu. Scientists involved in PMEs should explore the actual causes for such changes by conducting laboratory incubation studies on nutrient transformation, carbon cycling, microbial population, enzyme activities, etc.
- Mere stating the effect attributing to the imposed treatment is not expected. The consequences happening in soil and in root zone of crop after imposing the treatments must be studied in depth by standard methodology as followed in advanced laboratories in India/ Abroad. Advanced instrumental methods are also to be adopted.
- The results of PMEs have to be published in high rated accredited journals with good and relevant data.

- Practice of INM has been found to give high yield and also maintain soil nutrient status invariably in all experimental centres. The reasons for such performance has to be explained elaborately relating with C:N ratio, intermediary compounds released, substances synthesized by microbial communities, root surface area, ion exchange reactions, soil aeration, etc. Results on these phenomena are not generated so far and hence may be planned in future studies.

Centre for Plant Breeding and Genetics

I. Plant Genetic Resources

- Research works being undertaken in the Department for attaining the mandates is found minimal. Hence the scientists are requested to propose research projects fitting well within the mandates of the Department.
- Proposals being submitted for external agency funding should also be more focused towards the germplasm characterization and their utilization.
- Assembling all the available germplasm of TNAU in Ramiah Gene bank and their systematic characterization is to be completed.
- Undertaking scientific monitoring of seed viability of the existing 12,358 germplasm collection of cereals, millets and forage crops.
- Intensifying the explorations in all the crops along with concerned crop breeders throughout the state is essential.
- Maintaining and utilizing low amylose land races identified at HRS Pechiparai for further evaluation and multiplication; communicating the project outcome to the Professor and Head, Tapioca and Castor Research Station, Yethapur for its further utilisation.
- Sharing of promising mutants to be generated from the Tilling project in pulses along with marker data to all scientists handling mungbean breeding.
- Strengthening the rapid screening facilities for germplasm characterization and putting it under full use for the needed scientists / students.
- The low RFO mutants isolated in blackgram which are currently in M_2 generation have to be forwarded and verified for its consistency involving other pulse crop breeders if essential. The elite mutants after the attainment of homozygosity should be transferred to scientists handling blackgram breeding at NPRC, Vamban and Department of Pulses, CPBG.

Agricultural Engineering: Scientists' Meet held on 14.5.2014

- Improving the low cost chamber constructed for fruit ripening studies at farm level without any wastage of ethylene gas. Evolving a means for continuously maintaining ethylene to exact concentration.

- Expediting the works to come up with a model for shelf life enhancement of onions.
- Standardized method to regulate uniform rate of hexanol release. Studying the release of hexanol at varying concentrations of hexanol – air mixture.
- Development of a continuous flow ohmic heating system.
- Studies on the theory of foliar spray intake through foliar pathway and absorption by including appropriate scientist before attempting to experiment with yield attributes in the studies on effect of pre treatment of growth regulator on yield and quality of orange fleshed sweet potato.
- Intensive studies on the centrifugal dehuller machine which is working with >90% efficiency for small millets.
- Test verifying the technology developed for curry leaf powder preparation before commercialization through ABD.
- Assessing the parameters such as water dispensed at root, evaporation of moisture over time from mulched surfaces, condensation and loss through edges of mulch and correlating it with plant parameters.
- Correlating the soil temperature recordings with the evaporation parameters for arriving at the requirement of water and nutrients for chilli.
- Studies on the energy loss pattern in unit operation / components and working out an efficient adoptive briquetting model.
- Studies on energy use pattern in industries.
- Documenting the biomass characteristics of the selected stock to ascertain its correlation with the bio oil production.
- Intensified studies using microbes towards developing a process concerned with mango wastes processing.
- Developing a technology for value addition of cocoa mucilage.
- Development of seed separator for Sapota fruit.
- Development of Turmeric dryer.
- Developing a technology for puffed millet products.
- Development of turmeric dehusker cum deseeder.
- Development of environmentally compatible green roof cultivation / terrace gardens along with Horticulturalists.
- Design and evaluation of fertigation embedded micro-irrigation system with mulching under PFDC (both for open field and controlled atmosphere).
- Climate impact on water resources.
- Development of eco friendly filters/ mechanism for water quality improvement under rain water harvesting systems.
- Development and evaluation of hydroponic soilless system for vegetable production under protected condition.
- Planter for high density planting system (HDPS) in cotton.
- Mechanization of cultivation of vegetable crops.
- Value addition of cashew apple.
- Torrefaction of Bio mass for increasing energy density.

- Solar Powered animal and bird scarer units.
- Evolving water conservation technology package for upland rice through sprinkler irrigation technique (Direct sown tractor drawn seed drill + Suitable upland rice variety + Power weeder + sprinkler irrigation).
- Assessment and improvement of water resources potential for New Delta of Cauvery basin using RS & GIS Technology
- Design and development of a sensor system for efficient water management in rice crop.

Finalized technologies that are to be test verified at Multi Location Trials/ARTs with Line Department officials

- Tractor drawn turmeric rhizome planter
- Fermented millet based probiotics
- Centrifugal dehuller suitable for millets
- Cocoa pod breaker and drying of cocoa
- Breaking device for two wheel tractor trailer
- Ergo refined cono weeders for women workers
- Technology for curry leaves powder and its stability during storage
- Technology for sun dried tomatoes
- Tractor operated precision pulse seeder

Home Science: Scientists' Meet held on 14.5.2014

- Investigating the nutritional properties of kavuni and other rices by conducting animal experiments.
- Identifying and utilizing alternate microbe to *S. cervisiae* for preparing value added products from heat stabilized defatted rice bran.
- Standardizing the quality parameters for the preparations to be made using blackgram and developing instant mixes for idli and dosa utilizing recent releases.
- Undertaking rheological studies in the modified resistant starch developed from maize, cassava and banana.
- Assessing the presence of gluten in rice and maize based products.
- Comparing the probiotic cereal bar with the commercially available one and efforts to transfer the technology through the Directorate of ABD.
- Identifying the specific antioxidants present in the leafy vegetables.
- Utilizing BSR 2 amla which has the highest ascorbic acid for developing value added products and analyzing its antioxidant properties.
- Analyzing the mineral content of the wild fruits.
- Dehydrating technology for tomato has to be transferred to the Directorate of ABD.
- Working out the interventions required for maintaining the health and nutritional status of rural and urban children.
- Analyzing the phytochemical and antinutritional properties of moringa.

- Developing standards / parameters for assessing the health and safety aspect of women workers in small scale seafood processing units.

Centre for Agricultural Research Development Studies (CARDS) Scientists' Meet –held on 14.5.2014

- Analysis of resource use efficiency and cost-price relationships for mandate crops of CCPC Scheme.
- Sustainability Analysis of Dryland Agro-Ecosystem.
- Developing optimum crop plan for different agro-climatic regions.
- Marketing channels and Value Chain Analysis for rice and maize; and potato (by ARM).
- Assessing the consumer preference for organic products; assessing its export potential (T&IP).
- An Economic Appraisal of Post-Harvest Losses of Major Vegetables.
- Economic analysis of total value of ecosystem services.
- Impact of Financial inclusion on Income of Farmers.
- Impact Evaluation of Major Development projects supported by Govt. of Tamil Nadu.
- Study on diffusion and adoption levels of new varieties / hybrids, management technologies, and farm machinery / implements introduced by TNAU and their impact on a continual basis.
- Assessment of involvement pattern of farmers in the major interventions made by the State Department of Agriculture / TNAU and their impact on a continual basis.
- Studying the comparative effectiveness of ICT in Agriculture Projects being implemented by the Government, NGOs and Private Organization in Tamil Nadu.
- Study on validation of online contents in existing ICT in Agriculture Projects.
- Organization, Function and Strategy Analysis of Farmer Producer Organizations in Tamil Nadu.
- Organizational effectiveness of village panchayats- An application of Human Performance Technology.
- Business Performance Analysis of Small and Medium Coir and Coir products Enterprises and employment Generation in Rural Tamil Nadu.
- Management Strategy for Upscaling and assessing the performance of 'Do It Yourself Kit scheme" under Urban Horticulture Scheme in TN.
- Effects of Gender Entrepreneurial Self-Efficacy on Firm Performance.

General recommendations

- Broadening genetic base in all the crops by following suitable breeding strategies.
- All the breeders should maintain crossing ledger and pedigree record to trace the time line for evolving a new variety.
- Following an uniform nomenclature for mentioning pre-release cultures and released varieties/hybrids.
- Selection of parents for hybridization should be based on the objective of the projects and no. of crosses be restricted. In the evaluation of F_2s, adequate population size should be maintained for effective selection.
- Multi location trials may be inspected by a monitoring team constituted by the Director (CPBG) for agricultural crops and Dean (HC&RI), Coimbatore for horticultural crops.
- MLTs and ARTs should never be conducted simultaneously; those entries that are performing better in MLT alone have to be forwarded to ARTs.
- Necessary action has to be taken up for notifying the crop varieties released from TNAU for providing quality seeds to the farmers.
- All the scientists should have at least one University research sub project on mandate of the station/department irrespective of the externally funded scheme /ICAR AICRP scheme they are handling.
- Completion report and extension proposals for the subprojects should be sent in time /advance to avoid delay.
- All the scientists are requested to maintain the scheme / project files and registers for further review.
- Tree register may be maintained and year wise data for yield may be recorded for all fruit trees.
- Recommending CIB approved insectides/fungicides/nematicides alone.
- Making corrections with regard to crop protection chemical recommendations in the TNAU website.
- Documenting all crop protection practices and technologies through photos/videos *etc.*,
- Extending the duration of the research project if the project is for the development of resistant varieties along with breeders.
- Maintenance of wild species and its utilization in crop improvement programme.
- Combining the projects wherever the objectives overlap.
- All the Technical Directors are requested conduct the periodical reviewing all the research projects across TNAU for continuous monitoring.
- **The Technical Directors are requested to reclassify the activities mentioned under various crops as per the revised research agenda.**

Sd/- DIRECTOR OF RESEARCH i/c