

EIGHTY SECOND SCIENTIFIC WORKERS' CONFERENCE PROCEEDINGS
(05.07.2016)

The 82nd Scientific Workers' Conference (SWC) of TNAU was held in the convocation hall of TNAU on 5th July, 2016. The Vice Chancellor, TNAU, Commissioner of Agriculture, Chennai, Executive Director, TAWDEWA, Principal Chief Conservator of Forest, Coimbatore, Director of Seed Certification, Chief Engineer, AED, all the University Officers of TNAU, all Professor and Heads, Programme Co-ordinators of KVKs, Scientists of TNAU, all district level and block level extension officers participated in the conference.

Dr. M. Maheswaran, Director of Research in charge welcomed the gathering. In his address, he stressed for the need of an exclusive funding for TNAU by Government of Tamil Nadu to work on the mandates of Agriculture, Horticulture, Agricultural Engineering and other line departments. He made an elaborate presentation highlighting the research outcome emanated during 2015-16 and requested the Department officials to pass on the technologies to the farmers. Problems confronted by farmers at field level can be documented by interacting extension officials which would help in drawing an action plan, he added.

Dr. K. Ramasamy, Vice-Chancellor in his Presidential address emphasized that Paddy and Sugarcane farming have been completely mechanized. TNAU helped the Government of Tamil Nadu for receiving Krishi Karman award thrice for achieving the highest food grain production among various states at national level. A total of 268 MT has been achieved in food grain production in India (129 lakh tones from Tamil Nadu) and has to be constantly improved, Vice-Chancellor added. Vegetable production has to be enhanced to meet the domestic and export demands in India. Vice-Chancellor stressed that Kanyakumari and Tirunelveli districts have good water potential to raise crops and can support

agriculture in neighbouring districts too and thus their potentials are to be tapped. Thoothukudi and Thirunelveli districts cultivate maximum varieties of Banana and collections can be made from these districts, he added. Vice-Chancellor also stressed on the need for increasing the fodder production to feed the livestock population. Relying on solar energy to operate motors for irrigation and using the available water efficiently have to be thought of, he added. A book on 'Papaya' was released by the Commissioner of Agriculture and received by the dignitaries.

Thiru Anantha Kumar, IAS, Executive Director, TAWDEWA emphasized the importance of co-ordination and team building in executing development programmes of various line departments effectively for the benefit of farmers in Tamil Nadu state.

Thiru Devaraj, Chief Engineer, Agricultural Engineering Department said that the conference will be useful for development of Agriculture in the state. Custom hiring services are being extended to farmers to promote agricultural mechanization. He highlighted the development schemes implemented by the AED in Tamil Nadu. He informed that 80 % subsidy has been extended for installing solar operated 10 HP pumpsets for agriculture. He made request to TNAU that temperature controlled solar dryers for various crops are needed.

Director of Seed Certification and Organic Certification stated the following points.

- More awareness towards Horticulture; 32 % conversion to Horticulture
- 65 % Agriculture and Horticulture crops contribute to total GDP
- 35 % contributed by Tamil Nadu to national Tapioca production
- Turmeric: 35 % contribution at national level value.
- Tamil Nadu positioned at first place in Banana, Tapioca and Loose flower production.

Principal Chief Conservation of Forest Thiru Thiruvananthapuram, IFS said that Man – Animal conflict is an alarming issue in Tamil Nadu. About 10 – 15 % agricultural produces are damaged by animals in the forest. For the past decade, solar fence has been erected for about 1000 km besides trenches to ward off elephants. Comprehensive wild life compatible models are needed to combat man – animal conflicts.

Wild Boar, Bison and Peacock are also creating problems in 3600 villages in the Western Ghats region. Bamboo is consumed largely by paper mills to an extent of 90 % and mechanical harvester for Bamboo is needed to promote Bamboo cultivation in the region, he added. Tribal population is living in 37 villages in Coimbatore region and their livelihood is to be promoted by strengthening the agricultural practices as they are mostly working as agricultural labourers.

Dr. M. Rajendran, Commissioner of Agriculture, Chennai informed the house that honey bee rearing and avarai cultivation were documented in the ancient Tamil literature which can act as repellants for elephants. The demand for pulses is estimated at 43 Lakh MT in Tamil Nadu and this year has been declared as International year of pulses. This demand is fulfilled by importing pulses from Maharashtra. Hence, hybrids in pulses need to be developed to meet the demand for pulses in Tamil Nadu. The area under cultivation has come down to 46 Lakh ha from 66 Lakh ha with a decline in cropping intensity as well (110 % as compared to 121 % earlier) and hence crop productivity improvement is the need of the hour, he said.

The three major issues confronting Tamil Nadu are the presence of *Ipomoea* (NeyveliKattamanakku), *Eichornia* (Aagayathamarai) and *Acacia nilotica* (Karuvelam). Strategies to contain these three weedy plants through special funding are the need of the hour, he added. Tamil Nadu is pioneer throughout India in creation of farm ponds and use of mobile sprinklers and IFS. Second

Green Revolution is geared up in Tamil Nadu and among the 34 Departments in Tamil Nadu, Agriculture Department has been lauded by Chief Minister of Tamil Nadu for its commendable service. Horticulture offers more opportunity for tripling the farm income as envisaged by the Government, he added. Post harvest and value addition technologies for various crops are to be developed.

The Director of Research proposed the following issues and the highlighted the research achievements of TNAU.

Issues:

- The estimation of crop productivity is influenced by area, environment, varieties and production technologies
- Productivity is not stable across the state

Research achievements:

- Release of more than 770 varieties in various crops
- Replacement for CR 1009 with CR1009 Sub1 wherever submergence occurs
- Mitigation of drought using PPFM spray
- Successful transplanting of redgram in acceptable districts
- Development of TNAU crop boosters for Coconut, Pulses, Groundnut, Sugarcane and Maize
- Successful demonstration of IFS in Villupuram district
- Development of nutriseed pack technology for crops like maize, cotton etc.
- Pelletized sesame seeds for mechanized sowing
- Pre-inoculated nursery bed for rice
- Stage specific inoculants for rice
- Standardizing parameters for assessing soil health using GIS
- Ecological Engineering in insect pest management for rice
- Effective control measures for root grub in Sugarcane

- Efforts to control the new invasive pest in Tomato in Dharmapuri district
- Addressing the nematode problem in Guava and Pomogranate
- Superior clones development in *Meliadubia*
- Promotion of Annota plantations
- Standardized product development *Ex:* Cocoa tender, Moringa products and Ready to Serve Sapota juice

He further added that action plan for executing the needed research will be submitted to Government of Tamil Nadu by the Centres of Excellence.

Deliberations from Extension Officers of Tamil Nadu

1. Executive Director, TAWDEWA

District Agricultural Plans are developed for every district of Tamil Nadu. Five to Six blocks will be considered as a cluster in Tamil Nadu. Inter Departmental working group will consolidate the cluster propaganda. About 75 clusters are identified in Tamil Nadu and convergence approach is emphasized to execute development plans.

2. Extension Officers Deliberations

Q1. Polyhouse designs needed for farmers of tropical plains.

A1. Efforts are being made to combine both the structural and environmental designs in polyhouses. If 250 micron sized cladding material is used, it will never be damaged due to climatic conditions. Automation of temperature can be brought inside the polyhouse design [Dr. C. Divakar Durairaj, Dean, AEC & RI and Dr. Kotteeswaran, Professor (SWC)].

A2. Various models of polyhouses specially designed for vegetable crops are found near Singaperumal Kovil on the way towards Bangalore and Oragadam which is on the way to Chengalpet to Chennai (Vice Chancellor).

Q2. Need Tapioca boosters from TNAU.

F1 Hybrid in Tomato, suitable for rainfed conditions is needed.

A1. Tapioca booster can be released next year after development. (Dr. S. Manickam, Professor and Head, TCRS, Yethapur).

A2. Available local varieties may be used for cultivation. PKM I (Green Shoulder) variety holds good in all aspects. Hybrids may not be that much suitable for organic farming. (Vice Chancellor).

Q3. Vedaranyam has 2000 acres for Tobacco cultivation. Need alternate crop for Tobacco in this area (CoA)

A. Flax seeds, Mango, Tapioca may be suitable. A team of scientists from horticulture faculty will be sent to explore the possibilities for growing vegetables and fruit crops. (Vice Chancellor).

B. Tomato can be examined for adoption after demonstration trials. (Mr. Mayilvahanam, JDA)

Q4. Is there shade nets specially designed for flower crops? (Suresh Shreeram, DDA)

A. Protray system can be introduced for growing flower crops in shade net (Vice Chancellor).

Q5. Documentation of suitable crops for polyhouse / shadenet should be included in the crop production guide. (DDH)

A. It will be documented and made available shortly [Dr. S. Mariappan, Dean (Horti)].

Q6. Need standardization of cultivation practices for *Athalakkai* cultivation in Ramanathapuram, Thoothukudi and Virudhunagar districts. (DDH, Ramnad).

A. Farmers practice is found beneficial (Vice Chancellor).

Q7. Is there any good variety for red flesh Guava?

A. Red flesh variety has soft skin and poor keeping quality. However IIHR, Bengaluru has released varieties like Arka Kiran and Arka Reshmi which are good. Lalith variety has good shelf life but there is problem of nematode infestation. (Dr. T.N. Balamohan, Dean, HC & RI, Periyakulam).

Q8. Pelleting of seeds with fungicide and insecticide has to be done for pulses.

A. Seed pelleting technology for pulses is readily available in TNAU (Dr. P.Selvaraju, Special Officer, Seeds)]

Q9. Is there any mechanism to revert the soil back to its fertility?

A. Applying EM solution will serve the purpose [Dr. Duraisamy, Special Officer (NRM)]

Q10. What will be the protected way of cooking vegetables without pesticides?

A. Leave gap after every pesticide application so that there will not be any pesticide residue. Wash the vegetables with salt water or tamarind solution or soak the vegetables in lukewarm water to get rid of the pesticides. (Dr. K. Ramaraju, Director, CPPS)

Q11. Provide production based recommendation for various crops.

A. Combination of Inorganic with Organic fertilizers will be recommended soon.

Q12. Tissue culture technologies needed for Coconut

A1. Since there is limited expansion of area under Coconut, please go for alternate crops. (Vice Chancellor)

A2. Tissue culture coconut production technology is being standardized in co-operation with the Coconut board and in a period of two to three years, after standardization, seedlings of both Dwarf and Tall varieties can be supplied. (Dr. D. Suthakar, Professor and Head, Bio-technology)

Q13. Mechanised De-trasher needed for Sugarcane. (Mr. Murugan, Executive Engineer)

A. Yes it can be done. (Vice Chancellor).

Q14. Need seeds for Paddy, Pulses, Millets, Oilseeds, Sorghum, Maize, Ragi, Cumbu and Sunflower.

A. Seed Production can be done through Farmer's Participatory mode. But the availability of seed farms in TNAU premises is very less. TNAU cannot take the responsibility for seed production at large scale and the same can be attempted in State Seed Farms (Vice Chancellor).

Q15. Need training for AAOs and famers on machine transplanting.

A. Skill Development Centre is to be established at AEC & RI, Kumulur. Six months training will be imparted to dismantle and re-assemble tractor (Vice-Chancellor and Dr.K.Ramasamy, Dean, AEC&RI, Kumulur)

Q16. Crop production guide 2012 has to be updated in Tamil for Agriculture, Horticulture, Engineering etc. as separate volumes and to be printed (Th. Annamalai, JDA, Pudukottai)

A1. A separate committee will be formed for updating Crop production guide. (Director of Research).

A2. Crop production guide is presently available at Agritech Portal.

A3. A Cell has to be established involving TNAU scientists and Extension officials of the State Department of Agriculture to conduct Adaptive Research Trials on various crops.

Q17. Farmers are facing sterility problem in Maize while cultivating private hybrids. Recommend suitable TNAU Maize hybrid. (JDA, Seed Certification).

A. TNAU Maize hybrid CO6 is suitable to overcome the sterility problem. Sufficient seed material is available. (Dr. M. Maheswaran, Director of Research and Dr. K. Ganesamurthy, Director, CPBG).

Q18. Is there a suitable technology for copra drying to overcome the fungal infection? (Mr. Jeevanandham, Pollachi)

A. Solar tunnel dryer hybridized with gasifier technology can be used. (Dr. C. Divakar Durairaj, Dean, AEC&RI, Coimbatore)

Q19. Price of the Tissue culture banana supplied by the private companies is very high. Hence the low cost TC banana may be produced and supplied to the farmers.

A. TC planting material produced from Jain Biotech, Jalgaon is comparatively low. (Dr. V. Kumar, NRCB, Trichy).

Q20. Possibilities of using Hydroponics and Aeroponics technology for raising the crops may be explored. (Th. Anandha Kumar, Executive Director, TAWDEWA).

A. A model plot has been raised by students of HC & RI, Periyakulam under Experiential Learning Programme. The technology will be standardized based on the suitability of the crops.

Q21. List of approved and registered chemicals may be provided for farmers' use. (Mr. Annamalai, JDA, Pudukottai)

A. It is readily available in the TNAU Agritech Portal under Crop Protection section. (Dr. K. Ramaraju, Director, CPPS).

The meeting came to an end with the Vote of Thanks which was delivered by Dr. V. Ravi, Director, TRRI, Aduthurai.

For identifying the constraints and issues being faced by the JDAs of different districts, pre meeting with JDAs of different districts with Director of Research and with the Technical Directors of the University was held on 4.7. 2016 and the issues identified during the discussions are as follows.

Rice

1. Continuous tillering in rice ADT 49 during crop growth (Action: Professor and Head, Dept. of Rice and Director, TRRI, Aduthurai)
2. Presence red rice in CR1009 (Director, TRRI, Aduthurai)
3. Making TKM13 breeder seeds available (Director, CPBG)
4. Incorporating resistance to BLB and Blast in IR 50 (Director, CPMB and Director, CPPS)
5. For conducting ARTs, advanced plan should be done and non-germinating seeds should not be sent (Director, CPBG)
6. Alternative to ADT43 be suggested and the seeds be made available (Director, CPBG)
7. Weedicide recommendation for direct sown rice (Director, CM)
8. Seed to seed packaging including machine planting of rice (Director, CM and Dean, AEC&RI, Coimbatore)
9. Foliar application of water soluble fertilizer (Special Officer, NRM)
10. Relevance of laser leveler for rice (Dean, AEC&RI, Coimbatore and Director, CM)

Millets

1. Addressing the sterility problem in maize due to high temperature (Director, CPBG)
2. Incidence of root grub in cumbu (Director, CPPS)
3. Drought mitigation in millets (Director, CM)
4. Alternates to K12 and CO 30 sorghum (Director, CPBG)

Pulses

1. Processing centres for redgram (Director, CPBG and Professor and Head, PHTC)
2. Suitability of LRG41 for cultivation (Director, CPBG and CM)
3. Making sure of enough breeder seeds in pulses, especially in redgram (Director, CPBG)
4. Evaluation of redgram varieties from UAS, Bangalore (Director, CPBG)
5. Popularity of mothbean in Tindivanam area (Director, CM and Director, TRRI)
6. IPU 94-1 entry has no YMV incidence. Its confirmation and utilization (Director, CPPS)
7. Recommendation of water soluble fertilizers, foliar sspray of DAP, pulse wonder, or MAP : Appropriate technology to be followed (Director, CM and Special Officer, NRM)
8. Utilization of sewage water in Salem District (Director, WTC)
9. Transplanted redgram : Accounting for its success and failures (Director, CM)

Oilseeds

1. Alternate to TMV7 groundnut (Director, CPBG)
2. Making available the seeds of CO2 sunflower hybrid (Director, CPBG)
3. Mechanization in groundnut cultivation (Dean, AEC&RI, Coimbatore)

Coconut

1. Training to climbers on crossing technology (Dean, HC&RI, Coimbatore)
2. Button shedding in coconut (Director, CM)

Cotton

1. Variety for high density planting (Director, CPBG)

Sugarcane

1. SSI: Investment against returns and economics (Director, CARDS)
2. Mechanized sugarcane detrasher (Dean, AEC&RI)

Horticulture

1. Designing a polyhouse in plains (Dean, AEC & RI and HC &RI)
2. Shadenet for flower crops (Dean, AEC & RI and HC & RI)
3. Addressing the nematode problem in guava cultivation (Director, CPPS)
4. Management practices for offseason mango (Dean, HC&RI)
5. Presence of pesticide residue in vegetables (Director, CPPS)
6. Sprayers for coconut (Dean, AEC&RI)
7. Control measures for Johnson weed (Director, CM)
8. Production of tissue culture seedlings of banana (Director, CPMB and Dean, HC&RI)
9. Hydroponics Water requirement (Director, WTC)