

**Proceedings of the 84th Scientific Workers' Conference held on
19.8.2019 at Tamil Nadu Agricultural University, Coimbatore**

The 84th Scientific Workers' Conference was held at TNAU, Coimbatore on 19.08.2019 at the Tamil Nadu Agricultural University, Coimbatore. **Thiru. Gagandeep Singh Bedi, IAS**, Agricultural Production Commissioner and Principal Secretary, Govt. of Tamil Nadu and **Dr. N. Kumar**, Vice-Chancellor, TNAU, Coimbatore, chaired the Conference. **Dr. K.S. Subramanian**, Director of Research, TNAU welcomed the gathering and presented the action taken report of the 83rd Scientific Workers Conference held at TNAU during August 17-18, 2019. The Director of Research presented the action taken by both Department and University for each issues related to Agriculture, Horticulture, Agricultural marketing, Agricultural Engineering besides General ones.

During the SWC, **Thiru V. Dhakshinamoorthy, IAS**, Director (Agriculture), **Dr. N. Subbaiyan, IAS**, Director (Horticulture), **Thiru S.J. Chiru**, Commissioner of Agricultural Marketing & Agri-Business, **Er. R. Murugesan**, Chief Engineer, Department of Agricultural Engineering, **Thiru Nedunchezhiyan**, Director of Seed Certification & Organic Certification (i/c), **Smt. A. Anusuya**, Managing Director, Kallakuruchi Co-operative Sugar Mills Unit 1, Moongilthuraipattu, Kallakurichi District and **Thiru P. Murugan**, Asst. Director of Sericulture, Salem, presented the problems confronted in their respective Departments for which action of TNAU is required. The Technical Directors of TNAU also presented their research highlights besides providing replies to replies to the queries raised by the Heads of Departments. The following are the suggestions or action plans evolved after thorough discussions:

1. GENERAL

- Analyzing the reasons for decrease in Area/Production/Productivity of crops like 1.Paddy 2.Pulses 3.Groundnut 4. Sunflower and 5.Vegetables in the major district of Tamil nadu and providing concrete suggestions to bridge the gap

(Action: Director, CARDS).

- Some of the recently released TNAU varieties such as CO-50, CO-52 .ADT-50, MDU-1,TRY-3,TPS-5 in Paddy ; ADT-3 and ADT-5 CO-6,VBN-6 and VBN-8 in Black gram ;CO-8 in Red gram ; VRI-8 and TMV-4 in groundnut are not performing well *vis a vis* their claim. The reasons for why these varieties are not popular are to be analysed in the field?

(Action: Director, CPBG)

- TNAU to have model fields at KVKs and TNAU Research stations (minimum one acre) in the respective district for a particular variety. The Extension functionaries and farmers should visit the fields and assess its performance.

(Action: Director (CPBG), Director of Research, DEE, All KVKs, Concerned Research Stations and Respective District JDAs)

- TNAU will keep ready the seeds of Castor (YPR-1) and Sunflower (CO-5) to supply to the department to expand the area under oilseeds.

(Action: Director (Seeds)

- TNAU to get Breeder seeds of BARC released pulses varieties to produce Foundation seeds and give to department for further multiplication and distribution.

(Action: Director, CPBG) and Director, Seeds)

- Good hybrid seeds of TNAU such as Tomato Hybrid CO 3, Bhendi Hybrid CO 4, Chilli Hybrid CO 1, Bottle gourd Hybrid CO 1, Ribbed gourd COH 1, Snake gourd COH 1 are to be multiplied in farmers field with the help of TNAU scientists and Dept. of Horticulture officials and the hybrid seeds are to be made available to the State Department.

(Action: Dean (Hort), CBE, PKM, TRY and DHPC)

- Centres of Excellence of TNAU should have close association with the Departments of Agriculture & Horticulture.

(Action: Director of Research, DOA and DHPC)

- Dean (Hort) has to arrange to produce and supply required quantities of Vegetable Grafts particularly brinjal to DHPC. Research on Hydroponics to be intensified so as to develop the technology to suit Tamil Nadu.

(Action: Dean (Hort), CBE, PKM)

- Maximum number of Multi Location Trials (MLTs) and demonstrations in various places need to be carried out before releasing a variety to evaluate its performance under a varied conditions. Maximum number of trails should be carried out in Government Farms (SSFs and SHFs) that too under the supervision of the scientists or breeder concerned so that the actual performance is noted by the department officials and farmers together and there is scope to improve it further.

(Action: Director, CPBG)

- Information on the Front Line Demonstrations (FLDs) or MLTs carried out in KVKs or TNAU farms should be passed on to the district level officer concerned so that the officials can see the performance and take the farmers also there to see the performance. Minikits of new varieties may be given through JDAs/DDHs for proper recording of the performance.

(Action: Director, CPBG & DEE)

- Out of 385 Automatic Weather Stations established, only 100 are working. The data generated from the same should be sent by email on a daily to the Director of Agriculture who in turn will have to send it to the Commissioner of Revenue Administration and districts concerned.

(Action: Director (CM)

- A Discussion with HoD's and the VC and Directors of Directorates of TNAU under the Chairmanship of the APC & PS on the action taken on SWC deliberations needs to be arranged once in 3 months. The meeting may be arranged either in Chennai or in Coimbatore as per the convenience of the APC & PS.

(Action: DEE)

- Agri-nano products in agriculture (nano-fertilizers, pesticides, seed invigoration), horticulture for extending shelf-life of fruits & vegetables (nano-emulsion, nano-packaging) and sensors for moisture and nutrient detection for precision farming may be demonstrated to field officers

(Action: DOA, DHPC, Director of Research, DNRM)

2. AGRICULTURE

2.1. Crop Improvement

Rice

- Evolving short duration (90 - 95 days) high yielding and drought tolerant rice varieties for different agro-ecological situations of Tamil Nadu.
(**Action:** Director (CPBG) and Director (TRRI))
- Suitable saline tolerant paddy varieties for coastal Districts of Tamil Nadu. The three salt tolerant varieties (TRY 1, TRY 2 and TRY 3) released by TNAU need to be popularized and adopted. Among these three varieties, TRY 1 & TRY 3 medium (135 days) whereas TRY 2 matures in 105-110 d. Large scale demonstration can be taken up in Nagapattinam District during April - May 2020 in collaboration with KVK, Needamangalam

(**Action :** DOA, Director, CPBG, DEE, JDA Nagapattinam)

- Notification of Traditional Rice Varieties is mandatory for inclusion in the seed chain. As such, the available traditional varieties cannot be notified. The TNAU has initiated pure line selection of the '*Mappillai Samba*' and 'Seeraga Samba' and the selected pure lines would be evaluated in different locations for its yield and nutritional qualities. The status report will be presented in the next SWC.

(**Action :** Director, CPBG)

Maize

- Fall Army Worm (FAW) resistant genotypes need to be identified from indigenous or exotic sources.

(**Action :** Director, CPBG)

Redgram

- TNAU variety suitable for red gram transplanting is Co. 8. However, there is an urgent need to screen high yielding varieties suitable to Tamil Nadu conditions. The BARC variety can be tested to provide relative performance. The FLDs may be conducted in Dharmapuri and Krishnagiri Districts

(**Action :** DOA, Director, CPBG; Director (CM), DEE, JDA, Dharmapuri and JDA, Krishnagiri)

Blackgram

- The performance of TNAU YMV resistant varieties (VBN 6 & VBN 8) can be compared with a BARC variety (TU 94-2) and their performance may be tested in summer. The TNAU variety VBN 8 has been proved to perform better in summer of Cauvery Delta Zone.

(**Action :** Director, CPBG; Director, TRRI, NPRC, Vamban, JDA (Tanjore, Tiruvarur, Nagapattinam))

Groundnut

- Alternative varieties to the existing most popular Groundnut varieties such as TMV 7, VRI 2, JL 24, ICGV 91114 and GG 7 to be evolved. As suggested, the varieties of other states particularly Gujarat by farmers in Tamil Nadu will be included in MLTs of TNAU. Medium bold seeded groundnut variety VRI 8 and another pre-release culture **VG 13154** are also being evaluated critically.

(Action : Director, CPBG; Director, TRRI, RRS, Vridhachalam)

- Research is required to improve the Shelf life of Groundnut seeds.

(Action: Director (Seeds)

Cotton

- Efforts need to be strengthened for the earlier release of the synchronized maturing cotton variety which is under trail now.

(Action: Director, CPBG)

Sugarcane

- TNAU should evolve a suitable variety to replace CO 86032. The Sugarcane Research Stations of TNAU should evaluate the performance of a newly released Co. 11015 (Atulya) in June 2019 from Sugarcane Breeding Institute, Coimbatore.

(Action : COS, SBI, Coimbatore, Director, CPBG and Director, TRRI, Aduthurai, SRS, Cuddalore, Sirugamani and Melalathur).

2.2. Management

- The Paddy variety CO 51 has viability issues which needs to be immediately addressed.

(Action : Director, Seed Center)

- TNAU should produce and supply adequate quantities of Pink Pigmented Facultative Methylobacterium (PPFM) in drought prone areas. The possibility of commercializing this technology needs to be explored.

(Action : Director (DNRM), Director (ABD), HOD (Microbiology), TNAU, CBE)

- Zinc solubilizing liquid biofertilizer may be developed and demonstrated

(Action: DOA, Director DNRM, HOD (Microbiology)

- Multi-micronutrient liquid formulation for drip fertigation may be studied
(**Action:** DOA, Director DNRM, HOD, SS&AC)
- Drip irrigation in different ecosystems of rice may be explored
(**Action:** DOA, Director WTC)
- Necessity of De-topping for bud chip seedling planting
(**Action:** Director Crop Management & SRS, Cuddalore)
- The Technology for redgram transplantation has to be refined and given to the Director of Agriculture so that the cost benefit ratio is at a desired level.
(**Action:** Director (Crop Management), Prof. & Head (Agronomy), AC & RI, Madurai)
- Satellite based smart sampling to assess the crop out turn in done by TNAU. The approval of Government of India may be obtained for using the data.
(**Action:** Director, (NRM))
- Design aspects on gravity flow MI system need to be furnished to the Chief Engineer, Agricultural Engineering Department.
(**Action:** Director, (WTC)/Dean, AEC&RI)

2.3. Crop Protection

- Some of the pesticides notified by the Central Insecticides Board are not recommended by TNAU and some of them recommended by TNAU are devoid of notification by the CIB. Measures need to be taken to test and recommend new generation pesticides.
(**Action:** DOA, Director of Research, Director CPPS)
- Scientists of TNAU, KVKs and officials of agriculture department should closely watch Fall Army Worm incidences in Maize in the Rabi season and ensure that the damage is under control. Any incidence should be immediately reported.
(**Action:** Director, CPPS)

3. HORTICULTURE

3.1. Improved vegetables and fruit varieties / hybrids

Chilli

- The popular Munda type chillies need to be purified and made available to Ramnad area.

(**Action:** Dean (Horti), CBE & PKM)

Onion

- Shelf-life of onion variety (Co-On.5) needs to be improved.

(**Action:** Dean (Horti), CBE & PKM)

Fruit crops

- A red pulp guava variety (Cv. Arka Kiran) released by IIHR, Bangalore needs to be popularized.

(**Action:** Dean (Hort), CBE & DHPC)

- In avocado, newer varieties and also rootstocks tolerant to wilt need to be introduced.

(**Action:** Dean (Hort), CBE & PKM)

3.2. Management of Horticultural Crops

- The protocol for packaging of Jasmine for export purpose needs to be given to DHPC.

(**Action:** Dean (Horti) Coimbatore)

- Protocol for Palmyrah cultivation is given to DOA & DHPC for adoption.

Pit size : 60 x 60 x 60 cm

Spacing : 3 x 3 m

Filling the pits : FYM or compost @ 2 to 3 kg/pit

Seeds : Extract from fully ripened fruits

Sowing : Seeds @ 2 to 4 seeds/pit

Season : Monsoon season (or) pot watering

Germination : 105-110 days, goes up to 24 months (85%)

Thinning : After 2 years, one seedling

Dean, AC & RI, Killikulam, may supply available fruits for needy institutes

- Technologies may be developed for off-season flowering in jasmine under low cost polyhouse conditions

3.3. Crop protection

- The suggested effective Technology Capsule for controlling wilt disease in avacado may be included under any scheme so as to reach to the farmers of Lower Palani hills.

(Action: DHPC)

- A wilt like disease is spreading in Gaja cyclone affected Coconut gardens in Thanjavur district. A team of scientists from TNAU have to be sent immediately to the district to assess it and recommend control measures. The JDA, Thanjavur will facilitate the visit.

(Action: Director of Research, Dean (Hort), CBE, Director (CPPS)

3. AGRICULTURAL MARKETING

- Advanced technology to be developed to extend shelf-life of "neera" and the same to be demonstrated to marketing officials. Anti fermenting solution for preservation of Neera needs to be standardized at the earliest.

(Action: Director (NRM); Dean, AC & RI, KKM)

- Documentation of Market preference of TNAU released varieties is to be taken up for large scale adoption and popularization of TNAU varieties among the farmers.

(Action: Director, CARDS)

- Impact Evaluation of Mirco Irrigation and Solar powered pumping systems, Water Harvesting Systems created under Mission on Sustainable Dryland Agriculture and Solar driers schemes needs to be taken up by CARDS, TNAU. A proposal in this regard is requested.

(Action: Director, CARDS)

- Wide publicity should be given about the activities of Agri Business Incubation Centre, Plan of action with a vision for the next one year needs to be prepared by getting inputs from various directorates. The Agri Business scientists should be made to pay a visit to the Primary Processing Centres established under the Supply Chain Management Scheme.

(Action: Director, ABD)

- Training on Seed pelleting needs to be given to the officials/staff of Department of Agricultural Marketing and Agri Business.

(Action: Director, (Seeds)

4. AGRICULTURAL ENGINEERING

- A team of scientists from Farm Machinery (TNAU) and Department of Agril. Engineering are to be sent to Japan and Korean countries to identify and suggest farm tools and machinery suitable for smaller areas. Small models for Sugarcane harvesting should be envisaged to help sugarcane growers having small holdings. For de-trashing of cane also suitable machinery may be developed.

(**Action:** CE (Ag. Engg), Agricultural Engineering Dept., Dean, AEC &RI, CBE)

- Groundnut seed drill developed by TNAU and modified as a paired row former cum seed drill by a farmer in Tindivanam needs to be studied by TNAU scientists for its effectiveness and reported.

(**Action:** Dean, AEC &RI, CBE)

- Mechanical harvester for small holdings, seedlings and setts planter, mechanized detrashing machine need to be developed for sugarcane cultivation.

(**Action:** Dean, AEC &RI CBE and Kumulur)

5. SEED CERTIFICATION & ORGANIC CERTIFICATION

- Standard Operational Protocol (SOP) for organic production of agricultural and horticultural crops besides mulberry cultivation may be provided

(**Action:** DOA, Director Crop Management; Dept. of SOA)

- Scientific validation of Zero Budget Natural Farming needs to be done immediately as Government of India is going to bring out a scheme for the same shortly.

(**Action:** Director Crop Management)

- Seed Procurement Problems faced by TNAU need to be addressed

- Providing production and distribution subsidy (to farmers) for the seeds produced by TNAU in farmers field.
- Inclusion of TNAU seed production programs (Seed hubs) as a part of Seed Rolling Plan of TANSEDA
- Inclusion of TNAU released varieties (less than 5 years) in Minikit Programs of Government.
- Assured lifting of seeds at sale price fixed by TNAU to avoid loss and audit Objections to University
- Adoption of uniform procurement and sale price of seeds with subsidy both by TNAU and TANSEDA

(**Action:** DOA / Director, (Seeds))

6. SERICULTURE

- Annual / perennial varieties of mulberry and castor with high nutritious value and leaf yield need to be recommended for silk worm rearing alternate to mulberry.
(**Action:** Director CPPS, HOD (Sericulture))
- Comparative Studies on bush type and tree type mulberry for silkworm rearing may be attempted
(**Action:** Director CPPS, HOD (Sericulture))

7. FORESTRY

- The improved varieties of Agro-forestry tree species such as Kadam - MTP 1 and *Melia dubia* MTP 1 need to be introduced in all state farms so as to popularize their cultivation
(**Action:** DOA & DOH)
- Eco-friendly method of driving away wild boar menace is to be evolved at farm level
(**Action:** Dean (FOR) and Head Bio Energy, CBE)

8. POPULARIZATION OF NEWLY RELEASED IMPROVED CULTIVARS

The following new varieties approved and released by SVRC are to be popularized as indicated below

Unit:Qtl.

| No. | Crops | Varieties | Qty of Seeds Available | | | | Action to be taken by State Departments |
|-----|------------------------|---------------|------------------------|-----------------|----------------|--------------------------|---|
| | | | Breeder Seed * | Foundation seed | Certified Seed | Truthfully labelled Seed | |
| 1 | Paddy | CO 51 | - | 505 | 25 | 88 | Indent to be placed |
| | | ADT 43 | - | 130 | - | 187 | " |
| | | ADT 45 | - | 110 | - | - | " |
| | | ASD 16 | - | 320 | - | 149 | " |
| | | TKM 13 | - | 390 | - | - | " |
| | | IW Ponni | - | 44 | - | 33 | " |
| | | CR 1009 sub 1 | - | 120 | 234 | 134 | " |
| | | ADT 53 | - | 290 | - | 26 | " |
| 2 | Maize | COH (M) | - | - | 9 | - | " |
| 3 | Ragi | CO 15 | - | - | 40 | - | " |
| 4 | Kudiraivali (Barnyard) | CO(KV)2 | - | - | 26 | - | " |

| | | | | | | | |
|---|-----------|-------|---|----|-----|----|---|
| | Millet) | | | | | | |
| 5 | Blackgram | VBN 8 | - | 41 | 265 | 20 | " |
| 6 | Greengram | CO 8 | - | - | 28 | - | " |
| 7 | Groundnut | VRI 7 | - | - | 30 | - | " |

* Breeder Seeds of newly released varieties will be produced based on the indent from the State Department of Agriculture/Horticulture.

Directorate of Centre for Plant Breeding and Genetics

Status of Varieties of seeds / planting material released in the last three years

| S. No. | Crop | Variety Name | Year of release | Breeder Seed supplied upto 2018-19 (Quantity in kg) |
|--------|-----------------|--------------|-----------------|---|
| 1. | Cumbu | CO 10 | 2016 | 306 |
| 2. | Blackgram | VBN 8 | 2016 | 1567.5 |
| 3. | Cowpea (Fodder) | CO 9 | 2016 | 150 |
| 4. | Groundnut | VRI 8 | 2016 | 14150 |
| 5. | Cotton | CO 14 | 2016 | 20 |
| 6. | Rice | CO 52 | 2017 | 4280 |
| 7. | Kudiraivali | MDU 1 | 2017 | 55 |
| 8. | Redgram | CO 8 | 2017 | 430 |
| 9. | Blackgram | ADT 6 | 2017 | 320 |
| 10. | Blackgram | KKM 1 | 2017 | 170 |
| 11. | Sesamum | VRI 3 | 2017 | - |
| 12. | Castor | YRCH 2 | 2017 | - |
| 13. | Cotton | K 12 | 2017 | 40 |
| 14. | Sugarcane | CoC 25 | 2017 | - |
| 15. | Rice | ADT 51 | 2018 | - |
| 16. | Cowpea | VBN 3 | 2018 | - |
| 17. | Groundnut | TMV 14 | 2018 | 5500 |
| 18. | Sunflower | COH 3 | 2018 | - |
| 19. | Sugarcane | COG 6 | 2018 | - |
| 20. | Sugarcane | CO 06022 | 2018 | - |

| | | | | |
|-----|-----------|--------|------|----------------|
| 21. | Rice | VGD 1 | 2019 | To be notified |
| 22. | Rice | ADT 53 | 2019 | To be notified |
| 23. | Samai | ATL 1 | 2019 | To be notified |
| 24. | Greengram | VBN 4 | 2019 | To be notified |
| 25. | Groundnut | BSR 2 | 2019 | To be notified |
| 26. | Castor | YTP 1 | 2019 | To be notified |

Sd/-----
VICE CHANCELLOR
TNAU, Coimbatore