Proceedings of the 85th Scientific Workers Conference held virtually on 08.02.2021

A. Recommendations and Actions to be followed up are

I. General

1. Refresher Training for Officers

- Refresher training programme for the middle level officers is to be organized through online and offline mode during 2021-22 and its syllabus needs to be finalized in consultation with APC.
- The list of participants for the training programme should be finalized before the end of March 2021 to commence training programme during June 2021.
- Evaluation criteria may also be developed and evaluation of the training programme for the participants should be done to identify the specific focused interest group for further career development of the officers.

(Action : DEE & DR, TNAU;

3. Crop Production Guide (CPG)

The updation on the plant protection chemicals in the CPG 2020 may be given as an addendum to the CPG indicating the list of chemicals that have been approved for use in agriculture. The updation of content in CPG has to be done by incorporating the latest information and the Soft copy of the updated CPG both in English and Tamil may be communicated to all HoDs.

(Action: Director, CPPS & Director of Research)

II. Varieties and Seeds

1. RICE

1.1 Advisory on suitable Rice varieties in different regions of Tamil Nadu

A. Long Duration varieties	
ADT 51	Bold type, Low input efficient variety. Cultivation

(2018)	should be managed strictly with recommended fertilizers.
CR1009 Sub1 (2015)	To be promoted only in tail end areas where there is a problem of submergence during early seedling stage only
B. Medium Duration varieties for Delta Zone (alternate to BPT 5204 and NLR 34449)	
CO 52 (2017)	Medium duration with very fine quality rice replacing BPT. Suitable for late Samba and Thaladi
ADT 54 (2020)	Matures in 135 days, grain quality nearly matches Improved White Ponni variety, moderately resistant to Blast which is a major disease during Samba season
CO 50 (2010)	Bold grain rice variety recommended mainly for obtaining high yields, care should be taken to control false smut. Suitable for new delta zone.
TKM 13 (2015)	Suitable for Delta area in Pudukottai district and for delayed planting in Thaladi season
TRY3 (2010)	Highly recommended for Saline and Sodic Soil
C. Short Duration varieties	
ADT 53 (2019)	To be recommended strictly during May sowing in Delta zone and for December sowing, Rabi sowing in Western Districts.
CO 51 (2013)	High Market preference and suitable for Kuruvai season.
CO 53 (2020)	1. Drought tolerant and suitable for Sivagangai and Ramnad 2. Confirmatory field trials would be done during forthcoming Kuruvai in Delta Zone
TPS 5 (2014)	Short Bold Rice Variety Suitable for Replacing ASD16 in Southern districts during Kar & late Pishanam seasons

1.2 Action to be taken:

Long Duration Paddy Varieties:

i) Variety to replace Long duration CR 1009 Sub 1 (2015)

- CR 1009 Sub 1 can be recommended only for tail end areas where submergence is experienced during early seedling stage.
- TNAU should recommend suitable Bold variety with long duration to replace CR 1009 Sub 1

(Action: Director, CPBG)

Medium Duration Paddy Varieties:

ii) CO 52 (MGR 100) (2017):

TNAU has purified CO52 nucleus seed. The performance of CO 52 has to be studied at field level on receipt of Breeder seeds from TNAU and informed in the next meeting. More Indent should be placed with TNAU for supply of breeder seeds. The Director, CPBG, TNAU has to ensure the supply of Breeders seeds without any admixture.

(Action: Director, CPBG)

iii) TRY 3 (2010) & TRY 4 (2021)

These two varieties are recommended for saline tract. As TRY3 variety which has been notified in 2012 is nearing 10 years of age, the Department should take steps to multiply TRY4 after getting notification from Government of India and sincere efforts should be taken to bring TRY4 into the Seed chain. TNAU & DOA should take steps for early notification.

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

iv) VGD 1 (2019) (With Fragrance and similar to Seeragasamba)

This variety is reported to be performing well in western districts and has high demand among traders. There are reports of exhibition of Fragrance only in Cool weather period and high shattering during maturity. These issues have to be sorted out and the variety should be promoted in the western belt in a larger scale by increasing the indent for VGD1 for 2021-22. Suitability of this variety in Cauvery Delta Zone should be evaluated and the status has to be informed. TANSEDA should take speedy efforts to make certified seeds available to farmers in 2021-22.

(Action: Director, CPBG)

v) Variety to replace NLR 34449 (2010)

Alternate variety to replace NLR 34449 with Medium duration and fine variety has to be evolved. CO 52 would be the alternate variety to NLR 34449 and to be promoted at the field level.

(Action: Director, CPBG)

Short Duration Paddy Varieties:

vi) TPS-5 (2014):

This variety is suitable for southern districts to replace ASD-16. 400 Kg of Breeder seeds have been received and cultivated in SSFs and farmers' fields. Till date, 16 MT of Foundation seeds have been procured. The required quantity of TPS 5 breeder seed should be supplied to DoA and status of seed multiplication should be updated in next meeting.

(Action: Director, CPBG)

vii) ADT 48 (2005) & MDU 5 (1996) (Extra Early maturing varieties for Contingency)

- These two varieties have been notified before 10 years and recommended as a contingency measure for delayed release of water from the reservoirs. Milling issues have been reported. These varieties are least preferred by consumers and traders and need not be promoted in a larger scale.

(Action: Director, CPBG)

viii) Variety to replace ASD 16 and ADT 37

- An equivalent variety to replace ASD 16 (1986) and ADT37 (1989) needs be developed as they are old varieties.
- One pre-release ART entry, AS15024, would be an alternative to ASD16 during the second season in Tirunelveli and Kanyakumari districts. As of now, the ARTs are in the fields at Cheranmahadevi,

Mukkudal and Palayamkottai. Dept Officials can visit the fields. Can be visited by concerned JDAs.

(Action: Director, CPBG)

ix) Rice in general

- Suitable short duration (90-95 days), high yielding, drought tolerant varieties for Cauvery Delta Zone, Sivagangai and Ramnad districts need to be evolved.
- Saline water tolerant short duration varieties suitable for Kuruvai season has to be evolved.
- The proposal for notification of Traditional varieties (Ex. Seeraga Samba, Karuppu kavuni, Mappillai Samba etc.) has to be submitted.

(Action: Director, CPBG)

2. PULSES

2.1. Black gram

2.1.1 Advisory of suitable Black gram varieties under different ecosystems in Tamil Nadu

Variety	Duration (days)	Season	Districts
VBN 6 (2011)	60-65	Adipattam (June - August)	Villupuram, Tiruvannamalai, Salem, Dindigul, Theni, Pudukottai.
VBN 8 (2016)	70-75	Purattasipattam (Sep- Oct.)	Thoothukudi, Tirunelveli, Tenkasi, Madurai, Dindigul, Theni, Tiruvannamalai, Villupuram, Pudukottai, Vellore, Sivagangai, Tiruvallur, Dharmapuri, Namakkal, Perambalur, Madurai, Salem, Karur, Ariyalur, Ramanathapuram & Coimbatore
		Chithirai pattam (April-May)	Suitable for Summer irrigated condition in Tiruvarur, Thanjavur, Cuddalore, Nagapattinam & Trichy

VBN 10 (2019)	70-75	Purattasipattam (Sep- Oct.)	Most suited for Rabi cultivation in North Eastern districts (Kancheepuram, Tiruvallur, Chengalpattu, Vellore, Tiruvannamalai, Villupuram, Kallakurichi).
VBN 11 (2020)		Purattasipattam (Sep- Oct.)	1. Recently released and reported to be performed well because of its more branches and ability to give second flesh of flowers. 2. Performance to be studied
		Chithirai pattam (April-May)	Tiruvarur, Thanjavur, Cuddalore, Nagapattinam & Trichy
CO 6 (2010)	60-65	Sep sowing	Western Districts
CO 7 (2021)	65-70	Sep sowing	Western, North Western (Salem, Dharmapuri, Namakkal, Krishnagiri) region and Tirunelveli district
VBN 9 (2019)	70-75	Rice fallow (January)	Thanjavur, Nagapattinam, Cuddalore, Thiruvarur, Villupuram, Kancheepuram
ADT 6 (2017)	70-75	Rice fallow (January)	Suitable for Rice fallow cultivation in Thanjavur, Nagapattinam, Cuddalore, Thiruvarur, Villupuram, Kancheepuram & moderately tolerant to Yellow Mosaic Virus

2.1.2 Individual Issues to be followed in Blackgram:

a. VBN 9 (2019)

TNAU supplied 210 Kg of Breeder seeds in 14 districts. Feedback on the performance of VBN 9 should be given. As VBN 9 black gram variety has been released by Central Seed Release Committee, Seed multiplication may be taken up if found suitable in Tamil Nadu. Performance of VBN 9 and its suitability to grow in rice fallow condition may be discussed in the next meeting.

(Action: Director, CPBG)

b. CO 7 (2021)

TNAU & DOA should take steps for early notification of this newly released variety CO 7 for bringing into the Seed chain.

(Action: Director, CPBG)

c. Blackgram in general

- To have a clear vision on focused pulses varieties, TNAU should map Blackgram varieties for region / district and season wise recommendation should be communicated after having consultation with Department Officials.

(**Action** :**Director, CPBG**).

- As the VBN 9 and VBN 10 black gram varieties have already been approved by the CVRC, the Director of Research should bring a list of crop varieties which are recommended by CVRC and suitable for Tamil Nadu for discussion in SVRC for promotion among farmers.

(Action : Director of Research; Director, CPBG; Director Seeds)

2.2. Green gram

2.2.1 Advisory of suitable Green gram varieties under different ecosystems in Tamil Nadu

Variety	Duration (days)	Season	Districts
CO 7 (2005)	55-60	Adipattam (June - August)	Coimbatore, Erode, Salem
		Sep	Southern districts
CO 8 (2013)	55-60	Summer	Salem & Namakkal (Cultivation should be managed with prophylactic measures)
VBN 4 (2019)	70-75	Sep and Dec (Rabi Season)	All Districts

2.2.2 Individual Issues to be followed in Green gram:

a) New variety for replacing Co 7 in Western districts to be evolved as it is a 16 year old variety.

b) New variety alternate to replace ADT 3 (1988) has to be evolved for Rice fallow in Tiruvarur district to withstand excessive moisture during germination.

(Action: Director, CPBG)

2.3. Red gram

2.3.1 Advisory on suitable Red gram varieties under different ecosystems in Tamil Nadu

Variety	Duration (days)	Season	Districts
Co (Rg) 7 (2004)	120-130	Margazhipattam (Winter irrigated)	Karur, Madurai, Erode, Coimbatore, Tirunelveli, Theni, Dindigul & Salem
		Chithirai pattam (Summer irrigated)	
		Puratasi Pattam (Sep-Oct)	
CO 8 (2017) (6 months duration)	180	Vaigasi pattam (May- June)	Vellore, Krishanagiri, Dharmapuri, Salem, Erode & Theni
		Adipattam (June - August)	Thiruvannamalai Karur, Namakkal, Salem & Ariyalur,
VBN 3 (2005) (Short Duration)	100-105	Puratasi Pattam (Sep-Oct)	Karur, Madurai, Salem, Erode, Coimbatore, Tirunelveli, Theni, Dindigul, Pudukottai districts
		Margazhipattam (Winter irrigated)	
		Chithirai pattam (Summer irrigated)	

a. CO 8 (2017)

CO-8 Redgram is reported to be performing well with moderate resistance to pest and diseases and hence, necessary action plan should be taken for increasing the area under this variety CO 8, for increasing the Redgram production in Tamil Nadu. TNAU should give district wise advisory on suitability of Redgram variety & management practices for augmenting the redgram production in Tamil Nadu.

(Action: Director, CPBG)

b. BSR 1 (Perennial)

As BSR 1 is not notified, TNAU has to evolve a new perennial variety at the earliest for bringing into the seed chain for cultivation in the backyard. Further, a short duration, determinate and high yielding red gram variety needs to be developed.

(Action: Director, CPBG)

2.4. Cowpea

2.4.1 Advisory of suitable cowpea varieties under different ecosystems in Tamil Nadu

Variety	Duration (days)	Season	Districts
VBN 3 (2017)	70-75	Adipattam (June - August)	Coimbatore, Erode & Salem
		Purattasipattam (Sep- Oct)	Coimbatore, Erode Salem, Namakkal, , Madurai, Virudhunagar, Thoothukudi, Tenkasi & Tirunelveli

2.5. Horse gram

TNAU has to evolve new variety of Horse Gram since the existing varieties of PY1 (1988) & PY2(1998) are more than 10 years old.

(Action: Director, CPBG)

2.6. Bengal gram

Suitable protein rich and root rot resistant variety to replace Co 4 (1999) to be evolved.

(Action: Director, CPBG)

3. OILSEEDS

3.1. Groundnut

3.1.1 Advisory on suitable Groundnut varieties under different ecosystems in Tamil Nadu

Variety	Duration (days)	Season	Districts
CO 7 (2013) (High oil content (50%), needs 30 days for proper germination)	110	Kharif/Rabi	**Kharif** June-July: Theni, Coimbatore and Tenkasi July-Aug.: Namakkal, Salem, Vellore, Tiruvannamalai, Villupuram, Dharmapuri, Erode, Karur and Cuddalore **Rabi/Summer** Dec-Jan.: Tiruvannamalai, Villupuram, Cuddalore, Vellore, Kancheepuram, Pudukkottai, Sivagangai, Madurai, Virudhunagar, Namakkal, Salem, Dharmapuri, Erode, Coimbatore, Karur, Perambalur, Ariyalur and Trichy
VRI 8 (2016)	105-110	Rabi/Summer	
BSR 2 (2019)	105	Kharif/Rabi	
TMV 14 (2018)	100-105	Early Kharif	Namakkal, Salem, Vellore, Tiruvannamalai, Villupuram, Dharmapuri, Erode, Karur and Cuddalore with scanty rainfall where TMV-7 were grown.

3.1.2 Individual Issues to be followed in Groundnut:

a. VRI 8 (2016)

This variety is recommended for High input condition and suitable for Rabi Summer season. There was a field observation indicating Poor

germination, big sized pod with small, shriveled kernels and *in-situ* germination of seeds of VRI 8 variety Groundnut during Kharif season in Cuddalore and Villupuram districts. TNAU should study these issues and inform in the next meeting. Till then, no indent for Breeder seed for VRI-8 shall be made and suitable advisory may be given to the farmers to cultivate VRI 8 Groundnut in Rabi-Summer season only.

(Action: Director, CPBG)

b. Evolving alternate variety to K6, K7 and GG6:

Suitable alternate variety should be developed for replacing K6, K9, Dharani, GG7 and other state varieties evolved in Gujarat & Andhra Pradesh.

(Action: Director, CPBG)

3.2. Sunflower- CoH3 (2018)

CoH3 Sunflower hybrid was tested in Thoothukudi, Virudhunagar, Karur and Trichy. It is reported to be good but extensive damage upto 10-40% was observed. TNAU may evolve a high yielding and drought tolerant sunflower variety.

(Action: Director, CPBG)

3.3. Castor – YRCH-1 (2009), YTP-1(2019) & YRCH 2 (2017):

Breeder seeds of these YRCH1 & YTP1 Castor have been supplied in 2020-21 and found to be good in farmers field. Another YRCH 2 also has been released in 2017 which is lengthy spikes, non-shattering and suitable for intercropping. TANSEDA should take up Seed production of castor YRCH 1 and 2 in SSFs to ensure timely supply of seeds to the farmers for which TNAU may give training on hybrid seed production. The performance of YTP-1 & YRCH-2 may also be assessed and informed in the next meeting.

(Action : Director, CPBG)

3.4. Oilpalm

Suitability of Oil palm cultivation in Tamil Nadu to be studied by TNAU and the results may be informed.

(Action: Director, CPBG)

4. SUGARCANE

a. CoC 13339 (2020)

Director, CPBG reported that this variety performs on par with "Atulya" variety in the yield and sugar recovery. It was reported that there is an issue on flowering for which Director, CPBG has informed that those are off-types. This flowering issue of CoC13339 and other comparative performances need to be ascertained and the possibility of increasing area under this variety may be explored, if preferred by sugarcane farmers.

(Action : Director, CPBG,)

b. CoC25 (2018) & COG6 (2018) :

- The status on the progress of small mill test to be informed in the next meeting.
- Their performance should be closely followed by Department of Sugars and informed in the next meeting.
- Suitable plan of action for the promotion of all these varieties should be developed and

(Action : Director, CPBG)

5. COTTON

a. CO 17 (2020) (Synchronized maturity enables single harvesting)

Non-synchronized maturity has been observed in CO-17 Cotton variety in some places in Namakkal district. Therefore, further feedback may be obtained and reported.

(Action : Director, CPBG)

6. MAIZE

a. Evolving FAW resistant variety

TNAU should evolve suitable variety / hybrid resistant to Fall Armyworm. It was reported that that none of the hybrids could be declared as resistant to FAW. TNAU should initiate research efforts by involving domestic and exotic germplasm sources.

(Action: Director, CPBG)

c. Evolving hybrids / varieties to replace private Maize hybrids:

- TNAU should come with equivalent hybrid / varieties to replace private hybrid / varieties ie., NK 6240,CP 808, CP 818.

(Action: Director, CPBG)

7. CUMBU/ RAGI/ MINOR MILLETS

- Bio-fortified high yielding varieties for millets (like Dhansakthi variety in Cumbu) need to be evolved for nutritional security.
- A pre-release Fe and Zn bio-fortified cumbu hybrid 1619 would be proposed for release during 2021.

(Action: Director, CPBG)

8. SORGHUM

- A dual purpose variety suitable for both grain and fodder type should be evolved. The Competitive varieties/hybrids for millet crops have to be evaluated.

(Action: Director, CPBG)

9.GREEN MANURE

For taking seed production in green manure crops, TNAU has to recommend ideal Seed Production Zones**.**

(Action: Director, CPBG)

Specific Instruction to monitor the new cultures evolved by TNAU:

District JDAs, DDAs and ADAs should give their personal attention to monitor the performance of newly released cultivars in Adaptive Research Trial plots. The field level performance of those cultures should be closely monitored by extension officials and scientists from local research stations

and KVK. DOA & DHPC should issue suitable instructions to all districts. TNAU should communicate the list of new cultures sent to districts to DOA, with all necessary information. The crop sections concerned in the offices of DOA and DHPC should personally monitor the laying of ART plots from sowing to harvesting and Complete database should be maintained about the outcome of ART.

(Action: Director, CPBG,)

10. TREE CROPS

1. KADAM (MTP1) and MELIA (MTP 1)

As the Agroforestry is being given importance, these tree species have to be promoted in a large extent under TN MSDD and IFS schemes for which sufficient number of seedlings should be made available in all the districts.

(**Action** :**Dean, FC&RI,**)

III. CROP MANAGEMENT

A. Rice

1. The region specific management technologies for paddy cultivation under Terminal Drought / Flood Condition should be recommended by TNAU.
2. New innovative technology for transplanted paddy cultivation like SRI to be evolved.
3. TNAU to assess the feasibility of drip irrigation in Paddy cultivation to be studied.

(Action: Director, DCM)

B. Pulses

1. Suitable mechanism needs to be evolved to combat damage of Rice fallow Pulses sowing due to mechanical harvesting of Paddy in Delta region.

(Action: Director, DCM & Dean (Agrl.Eng.,))

2. Management technologies need to be recommended to overcome terminal moisture stress.

(Action: Director, DCM)

C. Gingelly

A new improved technology (MnSo4/Thinning) needs to be developed by TNAU to realize more yield.

(Action: Director, DCM & Director, NRM)

D. Cotton

New technologies are to be evolved for synchronized maturity in existing varieties (SVPR and MCU varieties).

(Action: Director, DCM)

E. Sugarcane

Mini kit hand refractometer should be developed for diagnosing micronutrient deficiency symptoms.

(Action: DNRM)

F. Automatic Weather Station

1. Automatic Weather Stations (AWS) in 285 blocks should be maintained in working condition. Proposal may be submitted for the maintenance of AWS. The rectification and re-location of AWS should be speeded up and completed before June 2021.
2. The places of relocation of 285 AWS should be finalized and installed in concurrence with CRA. The places of installation shall be detailed with a copy to Director of Agriculture for further follow up.
3. A new proposal for the annual maintenance of 285 AWS should be submitted for onward transmission to CRA within a month.

4. TNAU should inform the places of TNAU installed AWS so that repetition of installation of AWS by CRA in the same location could be avoided.

(Action: Director, DCM)

G. Red gram Transplantation

TNAU should circulate the ideal technique evolved for red gram transplantation to Director of Agriculture for effective ToT.

(Action: Director, DCM)

H. Soil Test Crop Response based Fertilizer Recommendations through Integrated Plant Nutrition System (STCR-IPNS)

1. To mitigate the soil health issues *viz*., declining soil organic matter, emerging multi nutrient deficiencies, indiscriminate use of fertilizers *etc.* and to meet the nutrient requirement of high yielding crop varieties and hybrids, STCR - IPNS based fertilizer recommendations for various crops and soils developed by TNAU is to be implemented in all the Static and Mobile Soil Testing Laboratories of State Department of Agriculture, Tamil Nadu.
2. The **STCR-IPNS approach** will rationalize the fertilizer use while ensuring crop productivity besides maintenance of soil health. A detailed technical note on STCR IPNS concept should be submitted to the Government by clearly indicating the role of Soil Testing Labs, other supervisory officers and TNAU.

(Action: Director, DNRM)

I. Development of liquid micronutrient mixture for all Agricultural crops

Micronutrient mixture may be developed in Liquid formulation for all agricultural crops (except Cotton and Sugarcane) and communicated to the Director Agriculture and Director Horticulture.

(Action: Director, DNRM)

J. Production of Water soluble fertilizers

Production of Water soluble fertilizer should be commenced in all three places viz., Coimbatore, Madurai & Killikulam centres and possibility of linking into the schemes and commercial marketing of Water Soluble fertilizers may be explored.

(Action: Director, DNRM)

K. Development of liquid consortia / liquid bio-fertilizer

1. In the development of liquid consortia [combination of Bio-fertilizers– Azospirillum(N), Phosphobacteria(P), Potash Mobilizing Bacteria(K) and Zinc Solubilizing Bacteria], measures to overcome acidic pH in Liquid Bio-fertilizer Production should be studied and recommended. (As per FCO 1985, pH should be 6.5 – 7.5, whereas pH of Liquid Bio-fertilizers produced by Department is 4.5 - 5).

(Action : DNRM)

2. Regular indent / purchase of liquid bio-fertilizers such as PPFM & Zinc Solubilizing Bacteria are to be made from TNAU for better utilization of the facilities available at TNAU.

(Action :DoA, DHPC & DNRM)

L. Nano Agri inputs

1. Development of Nano based Agri- Inputs should be done and passed on to the officials.

2. In house production of 500 stickers may be taken up and supplied to the needy farmers on a small scale.

(Action: Director, DNRM)

M. Use of Drones

TNAU has to provide crop specific advisory on cost effective usage of drones for crop insurance and plant protection measures.

(Action: Director, DNRM, Director, CPPS)

N. Herbolive - Wild Animal Repellent

1. Measures for Permanent control of damages caused by Parrot, Peacock, Monkey, Wild boar etc., may be evolved by TNAU
2. TNAU needs to submit a note to DoA & DHPC for further promotion among farmers by all the field officials.

(Action: DR)

IV. HORTICULTURE

A. General issues to be followed:

1. **Notification proposal** should be sent for all newly released varieties under Horticultural crops and followed up for early notification by GOI.
2. As suggested by VC, TNAU, the DHPC officials who can be involved in seed production are to be **trained for vegetable hybrid seed production** in TNAU.
3. **Co-ordination meeting for monitoring the supply of Breeder seeds of Vegetables:**

   Dean (Horticulture) and DHPC should have a coordination meeting **once in every two months** and work out centre-wise plan of action for breeder seed production of different vegetables based on

requirement for the year 2021-22 and review the progress to meet out the State demand.

4. Effective **plant protection measures under polyhouse system** of cultivation of various horticultural crops are to be recommended by TNAU.
5. **SOPs for Organic cultivation practices** (seed to harvest) including Exotic vegetables need to be recommended by TNAU for adoption.
6. **SOP for the hydroponic system of cultivation for raising green leafy vegetables** and high value tropical vegetables is to be communicated to the field officials for better dissemination.

(Action: Dean, Hort.)

B. Fruits:

- TNAU should give standardization of propagation techniques for rooting of cuttings in **Guava**.
- Tissue culture protocol techniques for all the local varieties of **Banana** are to be standardized by TNAU for rapid multiplication.
- A hermaphrodite variety of **Papaya** similar to Red Lady is to be developed by TNAU.
- Identification of Medium sized **Jamun** fruit with rudimentary seeds is to be evolved.
- TNAU should standardize technology in enhancing fruit set in **Avocado**.

(Action: Dean, Horticulture)

C. Vegetables

- **Hybrid seed production of core vegetable crops** viz., Gourds, Tomato, Chilli, Bhendi should be concentrated.

- **Grafting on Vegetable crops**: Horticulture Department officials should be trained on the grafting technology. The State Horticulture Farms may be involved in grafting and multiplication of grafted brinjal seedlings. The scions of local ruling brinjal varieties could be utilized for grafting with specific root stocks obtained from TNAU. DHPC should give indent to Dean (Horticulture) for root stock required for the grafting.
- **Purification process for mundu chillies** should be followed to obtain quality seeds. TNAU needs to develop Chilli variety with high capsaicin content.

(Action: Dean, Horticulture)

- **Technology for solar based drying system** for red chillies needs to be developed by TNAU.

(Action: Dean, Hort. & Dean (Agrl. Eng)

- **Standardization of Seed production techniques for Bellary onion and Small Onion:** Season wise Seed production methods should be evolved and communicated by Dean (Horticulture) to DHPC for propagation in field before 31.03.2021.

(Action: Dean, Horticulture)

- Suitable variety for **Bellary onion** shall be evaluated and recommended by TNAU for popularization.

(Action: Dean, Horticulture)

- **Improved variety (Transplanted) in Onion** with good keeping quality may be evolved.

(Action: Dean, Hort.)

- **Power operated De-topping machine for Onion** at field level may be developed.

(Action: Dean, Hort. & Dean (Agrl. Eng)

D. Spices

- Suitable standards for **pepper** cultivation should be focused and recommended to extension officials for adoption.

(Action: Dean, Horticulture)

E. Flowers

- **SOP for tissue culture production of Ornamental plants** (Anthurium, Gerbera, Bougainvillea, cordyline etc.,), indigenous medicinal plants and Bamboo may be evolved and recommended.
- Standardization of technologies for uniform spike production in **tuberose** is to be developed.

(Action: Dean, Horticulture)

V. CROP PROTECTION

1. **Strengthening the research on the management of Fall Armyworm (FAW)– TNAU Plant protection wing**

   The progress in research on management of FAW may be given in the forthcoming meetings. The research findings evolved under this project have to be periodically communicated to DOA for the adoption of farmers. APC & Principal Secretary has instructed to develop resistant genotype against FAW for which inbred lines from International / National Centers can be linked.

   (Action: Director, CPPS; DCPBG;)

2. IPM module for the management of FAW may be suited with GOI guidelines for inclusion under Centrally sponsored schemes.
3. Detailed study may be conducted on effectiveness of *Trichogramma pritiosm* on control of Fall Armyworm and Mass production technology in the Bio control labs.
4. Predators for Tapioca mealy bug (*Phenacoccus manihot)* to be made available by TNAU.

5. Protocol for the multiplication of *Encarcia* parasitoid may be communicated to DoA for adoption.
6. Suitable biological control measures for major horticultural crops to be standardized for adoption.
7. Standard testing Procedure for recent Bio-fungicides, Bio-Pesticides to be updated by TNAU.
8. Residual analysis kit /SOP to be recommended for Horticulture crops and to be popularized.

(Action: Director, CPPS)

VI. FARM MECHANIZATION

1. Prototypes for Pelletized paddy seed drill to be evolved and evaluated under field conditions. DoA to obtain feedback on the performance report.
2. AED to get feedback on the performance of Parabolic solar dryer.
3. Transplanter and harvester for Millets have to be developed
4. Combined pulse harvester needs to be developed to mitigate the labour problem.
5. Farmer friendly, Groundnut Combined Harvester (both for harvest & pod separation) needs to be developed.
6. Setts and seedling planter machineries to be developed.
7. Efficiency on the locally made sugarcane detrashing machine has to be analyzed and improved.
8. Tractor operated biomass harvester for sugarcane needs to be developed since the existing ones are imported and expensive.

(Action: Dean, Agrl. Eng.)

VII.SOIL AND WATER CONSERVATION

1. Impact Evaluation of Farm ponds created under NABARD-RIDF assistance

Impact evaluation of the farm ponds created shall be taken up.

(Action: Dean, Agrl. Eng. & Director, CARDS)

2. Green Energy Initiatives

a. Mobile Solar pumping system for irrigation

Mobile solar pumps shall be explored to enable easy transport using tractor trailer from one field to another field without damaging the solar panels in transit.

(Action: Dean, Agrl. Eng.)

b. Solar drying units

The perforated trays to be used are of food grade SS 304 material. The use of alternate material for trays which is easy for handling and production viz., HDPE food grade nestable trays shall be studied for safely drying the agricultural produce in the solar drying units, as the temperature inside these polycarbonate sheet covered greenhouse driers will be upto 65 degree Celsius.

(Action: Dean, Agrl. Eng.)

c. Mobile solar drying units

Mobile solar drying unit of similar type which could be mounted on the tractor trailer may be established, for hiring out to the farmers. The drying unit shall be planned with collapsible door and superstructure for easy transportation, if possible.

(Action: Dean, Agrl. Eng.)

d. The problem experienced in Solar pump linked with Micro irrigation may be studied and various measures for overcoming the problem in the field shall be suggested.

(Action: Dean, Agrl. Eng.)

3. Soil and Water Conservation

a. Reclamation of Problem Soils

Alternate engineering measures, combined with agronomic measures need to be suggested for reclamation of problem soils.

(Action: DNRM &Dean, Agrl. Eng.)

b. Reuse of Sewage waste water

A study may be taken for any low-cost technology to reuse the sewage waste water for irrigation purpose.

(Action: Dean, Agrl. Eng. & Director, NRM)

c. Saline water for irrigation

Efficiency of commercially available **"Structured water device"** may be studied in detail for enhancing the growth and yield of the agricultural crops. TNAU may come with a cost effective **"Structured water device"** to be fitted in the conveyance system for irrigation to reduce the impact of salinity on soil.

(Action: DNRM &Dean, Agrl. Eng.)

4. Evaluation study for Special Area Development Programme

TNAU may take up an evaluation study for the outcomes of the project.

(Action: Dean, Agrl. Eng.)

VIII. POST HARVEST MANAGEMENT TECHNOLOGIES

1. Nano stickers

Nano technologies for delaying the maturity and ripening may be developed and communicated. In-house production of Nano stickers

should be made available and supplied to the needy farmers in smaller scale.

(Action: Director, DNRM)

2. Bio-safety issues to be addressed for enhancement in seed groundnut shelf life.

(Action: Director, DNRM)

IX. AGRICULTURAL MARKETING TECHNOLOGIES

1. Cost effective cold storage technologies have to be evolved. Cold storage with controlled atmospheric storage validation may be developed.

(Action: Dean, Agrl. Eng. &Hort)

2. Mechanical drying technology for tamarind may be developed.

(Action: Dean, Agrl. Eng.)

X. FORESTRY

1. Network of Extension centre to be done.
2. Linkage between farmers and Industry has to be developed.
3. Linkage with Forest department has to be developed for formulation of FPOs.
4. Contract farming to be promoted in Forestry.
5. Suitable tree species may be suggested under Agroforestry system of the State.
6. Dean (Forestry) may submit a draft proposal to APC for Tamil Nadu under Sub Mission on Agro-Forestry under NMSA scheme.

(Action: Dean, Forestry)

XI. SERICULTURE

1. Fortification of Mulberry leaves with nutrients may be evolved.
2. Composting technologies for Silkworm extract/excreta needs to be studied and communicated.

(Action: Dean, Forestry)

XII. TREND ANALYSIS

Final report on the trend analysis in area, production and productivity of horticultural crops in selected districts and recommendation for bridging the gap should be submitted within a month.

(Action : Director, CARDS)

XIII. CENTRE OF EXCELLENCE (COE)

1. Suitable strategy should be worked out to include the dry land agriculture technologies under TN Mission on Sustainable Dry land Development.
2. TNAU should send a note on All CoE's **developed for crop / varieties / technologies / machineries / innovations** for implementation by Extension officials before April, 2021. This note should be given to APC, DoA and DHPC thereafter.

(Action : Director of Research, TNAU).

B. Product released for commercialization

With a constant support and encouragement of the APC & Principal Secretary and Vice chancellor, the following products have been launched.

1. DSSIFER
2. SOILDOC
3. Nano Sticker
4. TNAU Neera

These products have commercial value and the status of the technology spread may be reported in the next SWC.

In the concluding remarks, the APC & PS has appreciated the efforts taken by the team of scientists to evolve new high yielding varieties which are resistant to pests and diseases. Because of the follow-up actions on 84th

Scientific Workers Conference, majority of promising new high yielding varieties and technologies have reached the farming community. Further, when the maize crop was infested with Fall Armyworm, the experts of TNAU have visited the villages, inspected the affected crops and suggested the plant protection measures for adoption by farmers and propagation by extension officials. The Seed Centre at TNAU has taken sincere efforts to supply indented breeder seeds and Department of Agriculture has also multiplied the seeds in a shortest possible time. Much progress has been made in the field of agricultural engineering, soil health and agro-forestry. Various issues faced by the farmers have been posted by extension officials.

APC & Principal Secretary has requested all scientists to put their maximum efforts to sort out the field level issues then and there. Likewise, department officials also should bestow their personal attention to take all the new technologies and varieties to the farmers' fields. Further, APC & PS has instructed that there would be three follow-up reviews in a year instead of convening the discussion once in a year, to have continuous follow-up. He emphasized the role of research and extension wings and insisted that TNAU and department should work in tandem for the upliftment of farmers of Tamil Nadu.

Lastly, the Vice Chancellor while extending the vote of thanks, expressed that the different format adopted from the 84th SWC is well appreciated. Good co-ordination between TNAU and Department in all activities envisaged in the 84th SWC has been ensured. Tamil Nadu is one of the few States where relationship between Agricultural University and Department is very close. Vice Chancellor informed that the issues posted by the department officials will be divided into short term and long term objectives based on the work involved and TNAU scientists will give suitable remedial measures as early as possible.

The SWC ended with vote of thanks.

Agricultural Production Commissioner
& Principal Secretary to Government