



Action Taken Report

(84th Scientific Workers Conference First Interim Review Meeting held on 26.11.2019)



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Director of Research

Tamil Nadu Agricultural University

Coimbatore

2nd Interim Review Meeting

(11.03.2020)

Recommendations

(1st Interim Review Meeting on 26.11.2019)

(Agriculture, Horticulture, Agricultural Engineering, Agricultural Marketing, Forestry, Sericulture and Seed Certification)

No	Subject	Number of Recommendations
I	General	6
II	Varieties & Seeds	13
III	Crop Management	13
IV	Horticulture	9
V	Crop Protection	2
VI	Post-harvest Management	3
VII	Mechanization & Post-harvest Engineering	2
VII	Synergy between TNAU & Department	6
IX	Others	6



I General

I GENERAL

No	Recommendations	Action Taken
1	<p>Process of conducting the interim action taken meetings in every quarter.</p> <p>(Action : DR)</p>	<p>84th SWC held on 19.8.2019</p> <p>I Interim ATR Meeting – 26.11.2019</p> <p>II Interim ATR Meeting – 11.3.2020</p>
2	<p>Trainings to technical officers on latest technologies are to be provided by TNAU</p> <p>(Action : DEE & DR)</p>	<p>Modules developed for conducting a series of 3 day Refresher Training for Middle Level Officers of DOA & DHPC that was sent to the Dept. on 30.12.2019.</p> <p>On receipt of funds and list of officers to be trained from DOA and DHPC, training program will be organized. Mail sent on 26.02.2020.</p> <p>Annexure – 1</p>

No	Recommendations	Action Taken
3	<p>Overcome the short supply of groundnut seeds to farmers in both department and TNAU, a Centre of Excellence for Groundnut in Vridhachalam is proposed.</p> <p>(Action : CPBG)</p>	<p>A proposal on COE in Groundnut was submitted to NADP on 27.1.2020 and it is in the process of evaluation for funding in New Delhi and appears to be positive</p>
4	<p>Directors of TNAU and the Heads of Departments need to have discussions as and when required to address field problems.</p> <p>(Action : DR / DoA / DHPC)</p>	<p>DoA & DHPC are in frequent touch with DR and other University Officers through WhatsApp and regular mails.</p> <p>The field problems referred by the department is being addressed by the University as when it happens.</p>

No	Recommendations	Action Taken														
5	<p>Protocols developed for various crops need to be communicated officially by TNAU to the HoDs concerned so that it can be immediately transmitted to field officials.</p> <p>(Action : DR & DoA)</p>	<p>Protocols developed for various crops have been incorporated in the Crop Production Guides of Agriculture and Horticulture and were officially handed over to DoA and DHPC on 09.01.2020</p> <p>Printing cost of CPGs (Rs.300 each for 2000 copies) has been communicated to the DoA. Awaiting indent.</p>														
6	<p>Extension officials and scientists should work in tandem in controlling pests and diseases to benefit farmers</p> <p>(Action : CPPS & DoA)</p>	<p>FAW</p> <table border="0"> <tr> <td>No. of Joint Diagnostic Visits</td> <td>: 388</td> </tr> <tr> <td>Awareness Campaigns</td> <td>: 428</td> </tr> <tr> <td>FLDs</td> <td>: 120</td> </tr> <tr> <td>Farmers beneficiaries</td> <td>: 42,000</td> </tr> <tr> <td>Input Dealers</td> <td>: 2350</td> </tr> <tr> <td>Extension Officials</td> <td>: 2600</td> </tr> <tr> <td>International Conference</td> <td>: March 4-5, 2020.</td> </tr> </table> <p>Spiralling Rugose Whitefly</p> <p>June 2018 – Feb 2020 – 1437 Beneficiaries 35 lakhs <i>Encarsia</i> parasitoids supplied from CRS, ALR Beneficiaries : 6328 (2018), 9128 (2019) and 6038 (2020)</p> <p>Annexure - 2</p>	No. of Joint Diagnostic Visits	: 388	Awareness Campaigns	: 428	FLDs	: 120	Farmers beneficiaries	: 42,000	Input Dealers	: 2350	Extension Officials	: 2600	International Conference	: March 4-5, 2020.
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FLDs	: 120															
Farmers beneficiaries	: 42,000															
Input Dealers	: 2350															
Extension Officials	: 2600															
International Conference	: March 4-5, 2020.															



II Varieties & Seeds

RICE

No	Recommendations	Action Taken
1 i	CO-52 (MGR 100) : Indent 200 kg BS to TNAU by DoA. Ensure no admixture and give feedback.	Strict purification process followed during Sept Dec. 2019. The BS production is planned during 2020 (Sept - December) with a target of 40 quintals
ii	TPS – 5 : Promoted in Kanyakumari and adjoining areas for ASD-16. DoA to indent for 600 Kgs of seeds. Feedback from DOA	TPS 5 is recommended to be an alternate variety to ASD 16 and the performance is good
iii	TRY-3: Saline tolerant variety to be promoted in soils affected with salinity	FLDs with TRY 3 will be taken up in 200 ha in saline patches of Nagapattinam district during 2020 with the help of KVK, Needamnagalam.
iv	VGD-1 : Notified in Oct. 2019. DoA intended for 200 kgs. DoA to give feedback on the performance of the variety in the February 2020 meeting.	BS of VGD 1 has been taken up in an area of one acre to produce 500 kg of Breeder Seeds for the supply during 2020-21.

(**Action** : CPBG, Seeds & DoA)

PULSES

No	Recommendations	Action Taken
2 i	<p>Black gram : ADT-6, VBN-9 & KKM-1: Varieties to replace ADT 3</p> <p>DoA to indent CO-6 (50 kg), VBN-6 (668) and VBN-8 (680 kg)</p>	<p>BS supplied during 2019-20 (in Kgs)</p> <p>ADT 6 – 400; VBN 9 – 200; KKM 1 – 220 kg CO 6 – 58; VBN 6 – 848; VBN 8 -1026 VBN 10 – to be sent during 2nd week of Mar. 2020.</p>
ii	<p>Red gram (Co.8): DoA to indent 120 kgs of BS and give feedback</p> <p>BSR-1: Perennial variety. Indent to be placed by DoA.</p>	<p>As per the indent, the Redgram CO 8 - 120 kg of Breeder Seeds were supplied during 2019-20</p>
iii	<p>VRI-8: 20,000 kgs of VRI-8 seeds have been sown in SSFs. DoA to give feedback</p> <p>TMV-14: Alternative to TMV-7. 10,000 kgsof TMV-14 raised in SSFs.</p>	<p>As per the indent of DoA, Breeder Seeds were supplied during 2019-20</p> <p>VRI 8 - 21 tons TMV 14 – 7.6 tons</p>
iv	<p>BARC TT-401 in Redgram</p> <p>DOA – 30 kgs BS raised in 4 Dts - Feedback</p>	<p>CRS, Veppanthattai Harvested on 28.02.2020; Exp. seed yield is 200 kg. Dept. of Pulses, TNAU, Coimbatore Yield : Co(Rg) 7: 717; TT401. Co(Rg) 7 : 611 kg/ha) 100 seed weight (g) 10; 8.6 g Co 8 in maturity stage.</p>

(Action : CPBG, Seeds & DoA)

CASTOR & SUNFLOWER

No	Recommendations	Action Taken
3 i	<p>Castor YTP-1 & YRCH-1</p> <p>TNAU - 400 kgs of YTP- 1 and 1500 kgs of YRCH 1 seeds are available for distribution. Further, to produce YRCH 1 & 2 in 100 acres.</p> <p>DoA: Additional indent for the Castor YTP 1 and YRCH 1 to be placed by DoA before 15th December and feedback by the DoA</p>	<p>Under Seed Hub, sowing was taken up in 74 ac. Expected seed yield is 25 tons</p> <p>2000 kgs of YRCH -1 Hybrid Castor seeds in April 2020</p> <p>500 kgs of YTP -1 Castor seeds in June 2020 onwards.</p>
ii	<p>Sunflower COH3</p> <p>CO5 variety of sunflower to be replaced by COH 3.</p> <p>DoA has placed intent for 100 kgs of F1 seeds and the hybrid is to be promoted in Karur, Thoothukudi, Virudhunagar and others</p>	<p>Sunflower COH3 (TFL Seeds) seeds were supplied @ 25 kgs each ADAs in Thoothukudi, Karur, Trichy and Viruthunagar on 19.11.2019.</p> <p>In addition 20 FLDs were conducted by Dept. of Oilseeds, TNAU, Coimbatore during <i>Rabi</i> 2019-20 in Vilathikulam block of Thoothukudi district.</p> <p style="text-align: right;">(Action : CPBG, DoA)</p>

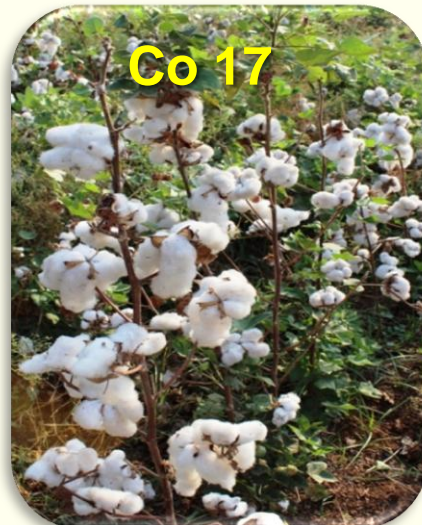
SUGARCANE

No	Recommendations	Action Taken
4	<p>Sugarcane variety Co 11015 (Atulya) to replace CO 86032 At SRS, Cuddalore, Atulya evaluated in 1.5 acres along with check varieties.</p> <p>ii Feedback from CPBG</p>	<p>At the ninth month, single cane weight and CSS% recorded for Co. 11015, CoC 13339 and Co. 86032 were 1.1, 1.3, and 0.9 kg and 12.4, 12.2 and 12.0%, respectively. The crop is yet to be harvested.</p>
iii	<p>CoG-6 : High sugar recovery, suitable for salinity and tannery affected areas.</p> <p>Commissioner of Sugars to give feedback on CoG 6</p>	<p>Supplied 86.8 tons of seed cane</p> <ol style="list-style-type: none"> 1. Ambur Cooperative Sugar Mill: 64.8 tons 2. Perambalur Cooperative Sugar Mill: 15 tons 3. Seed cane supplied at SRS, Melalathur: 7 tons



COTTON

No	Recommendations	Action Taken
5 i	<p>Synchronized maturing cotton variety</p> <p>Culture TCH 1819 is to be submitted to the SVRC in December 2019.</p>	<p>Released as CO 17 during 50th SVRC and 36th State Seed Sub-Committee Meeting held on 09.01.2020.</p>
ii	<p>Feedback from Farmers - CPBG</p>	<p>CO 17 crop was raised in farmers field in Thiruvarur district under rice fallow condition. Yield : 2630kg/ha</p> <p>In addition, seeds supplied in February 2020 to raise the CO 17 crop in an area of 12 acres for demonstration in Thiruvarur and Coimbatore Dts.</p>



Cotton Yield : **2360 kg/ha**

Ginning : **35%**

Suitability

All season, High Density Planting
Mechanized harvest

GROUNDNUT

No	Recommendations	Action Taken
6 i	<p>Performance of Gujarat varieties</p> <p>K6, K9 and GG7 have been included as check varieties in MLTs and ARTs (Rabi' 19-20).</p>	<p>Included as check varieties in MLT (11+3) and special MLT (Early) (3+2) which is being conducted across six locations in Tamil Nadu during rabi/summer 2019-2020 season. The crop is in flowering and pod formation stages.</p> <p>Seed multiplication is being taken-up at RRS, Vriddhachalam during <i>Rabi</i> / summer 2019-20 season</p>
ii	<p>VRI-8 to replace Gujarat varieties. BSR-2 & TMV-14 have the potential to replace TMV-7.</p> <p>DoA to give feedback on the performance</p>	<p>VRI 8 is a bold seeded variety with a mean hundred kernel weight of 50 - 60g under std cultivation</p>



7. Viability issues in paddy Co. 51 variety

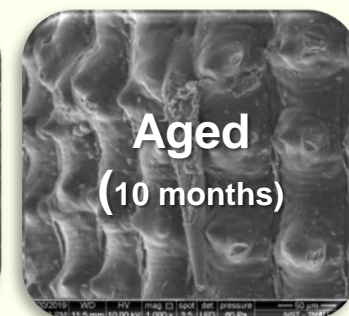
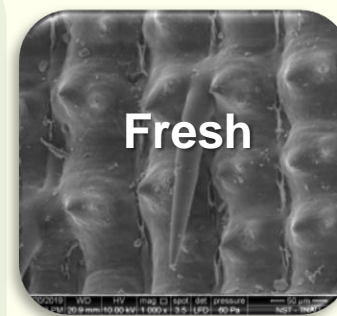
No	Recommendations	Action Taken																					
i	<p>Poor viability of CO 51 paddy seeds is due to cracking of seed coat when it reaches 10 m, germination is reduced to 78%.</p> <p>Director, Seeds to collect the sample seeds from the Agriculture Department and test for the viability and give a practical solution.</p> <p>(Action : Director Seeds; DoA)</p>	<p>Freshly harvested CO 51 paddy seeds samples were obtained from JDAs of eight districts of Tamil Nadu</p> <table border="1"> <thead> <tr> <th>Location</th> <th>Germination (%)</th> <th></th> </tr> </thead> <tbody> <tr> <td>Kancheepuram</td> <td>74</td> <td rowspan="4">Less than IMSCS (80 %)</td> </tr> <tr> <td>Thanjavur</td> <td>74</td> </tr> <tr> <td>Vellore</td> <td>78</td> </tr> <tr> <td>Nagapattinam</td> <td>78</td> </tr> <tr> <td>Theni</td> <td>82</td> <td rowspan="4">Above IMSCS (80 %)</td> </tr> <tr> <td>Thiruvavarur</td> <td>90</td> </tr> <tr> <td>Tiruvannamalai</td> <td>90</td> </tr> <tr> <td>Trichy</td> <td>96</td> </tr> </tbody> </table>	Location	Germination (%)		Kancheepuram	74	Less than IMSCS (80 %)	Thanjavur	74	Vellore	78	Nagapattinam	78	Theni	82	Above IMSCS (80 %)	Thiruvavarur	90	Tiruvannamalai	90	Trichy	96
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Seed Coat

Seeds of Vellore, Nagapattinam, Kancheepuram and Thanjavur had < **IMSCS of 80%** at initial itself.

Seeds were dried to 10% & 12%, packed in cloth bag and kept for storage after imposing seed treatment *viz.*, carbendazim @ 2 g + malathion @ 10 g / kg and halopolymer @ 3 g/kg.

Storage study is in progress.



No	Recommendations	Action Taken
8	<p>Evolving Short duration (90 - 95 days) high yielding and drought tolerant rice varieties</p> <p>ADT 48 and MDU 5 mature in 95 days under direct seeding & 100 days under transplanted condition. DoA to give feedback</p>	<p>Dept of f Rice An extra early culture CB 14920 (ADT 43/ CB 10550) developed that mature in 101 days with a grain yield of 5695 kg/ha which is 13.6% increase over ADT 48</p> <p>TRRI, Aduthurai Rice culture AD 16019 with maturity duration of 95 days and under MLT. Breeding materials with maturity of less than 95 days are in F3, F4 and BC1F4 stages</p>
9	<p>Saline tolerant paddy varieties for coastal Tamil Nadu</p> <p>TNAU has released three varieties TRY 1 (135 days), TRY 2 (110 days) and TRY 3 (135 days)</p> <p>Dean (ADAC&RI), Trichy to organize FLDs by involving JDA, Nagapattinam.</p>	<p>DoA was informed that TRY 1 and TRY 2 were released > 10 yrs ago and are not preferred by the farmers</p> <p>TRY 3 is saline tolerant and notified during 2012 which can be demonstrated in 200 ha through direct sowing in the month of Sept. 2020 at Nagapattinam District. JDA was informed about the availability of seeds</p> <p>Tirumarugal (20), Sirkazhi (25), Kollidam (25), Sembanarkoil (20), Kilvelur (20), Keelivur (20), Vedarnayam (25), Thalianayar (25), Nagapattinam (20).</p>

No	Recommendations	Action Taken
10	<p>Fall Army Worm (FAW) resistant genotypes:</p> <p>Screening trial conducted in kharif'19 season with 19 entries (9 TNAU hybrids, 2 private hybrids and 8 in breeds). (Action : CPPS)</p>	<p>Natural incidence of FAW was observed on 28 Days and none found resistant.</p>
	<p>Two wild species viz., <i>Zea mays ssp parviglumis</i> and <i>Zea luxurians</i> were also collected through Indian Institute of Maize Research, Ludhiana for testing against FAW. (Action : CPBG)</p>	<p>The seed multiplication of two wild species is in progress.</p> <p>Further, development of hybrids with Fall Army Warm resistant donors is in progress</p>



Zea mays ssp parviglumis



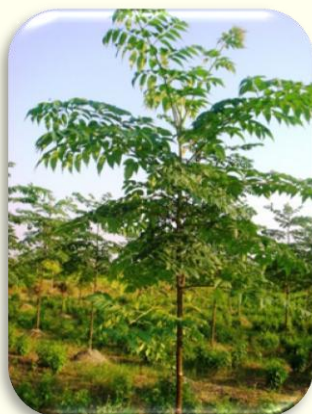
Zea luxurians

Genotypes are known to confer resistance as a consequence of higher amounts of phenolics

No	Recommendations	Action Taken
11	<p>Annual / perennial varieties of mulberry and castor for silk worms</p> <p>The G4 variety is recommended in the place of V1 for mulberry tracks.</p> <p>GCH 4 and DCH 519 castor varieties are recommended for Eri culture in Tamil Nadu. The details are to be communicated (Action : DR)</p>	<p>A letter has been sent AD of Sericulture, Salem to recommend G4 mulberry variety in the place of V1 for silkworm rearing and GCH 4 and DCH 519 castor varieties for Eri silkworm culture.</p>
12	<p>Study on bush type vs tree type mulberry for silkworm rearing</p> <p>Tree type mulberry planting is to be taken up at ARS, Bhavanisagar, for comparison with bush type mulberry.</p> <p>(Action : Dean, Forestry)</p>	<p>Tree type mulberry planting was taken up in 1.0 ac at ARS, BSR and is being evaluated for growth, pruning, occurrence of pests & diseases, yield parameters</p> <p>Bioassay comparison with bush type mulberry is in progress.</p>

13. Introduction of Tree Species in SSFs and SHFs


No	Recommendations	Action Taken
13	<p>TANSEDA has placed intent to FC & RI, Mettupalayam for 800 numbers of each Kadam-MTP-1 and <i>Melia dubia</i> MTP-1 saplings.</p> <p>TANHODA to place intent for 450 numbers of Kadam-MTP-1 saplings and 450 no.s of <i>Melia dubia</i> MTP-1 saplings.</p> <p>(Action : Dean, FC&RI, MTP; TANSEDA; TANHODA)</p>	<p>Supplied seedlings of <i>Melia dubia</i> MTP-1 (20 Nos.) to SHF of Kannampalayam and 10 Nos. to Annaikatti.</p> <p>Supplied Kadam MTP-1 (20 Nos.) to SHF in Kannampalayam and 10 in Anaikatti</p> <p>800 Seedlings of <i>Melida dubia</i> MTP-1 ready for supply and awaiting indent from TANSEDA</p> <p>Kadam MTP-1 production is in progress.</p> <p>Seedlings of <i>Melida dubia</i> MTP-1 (450 Nos.) ready and awaiting for indent from TANHODA,</p> <p>Kadam MTP-1 (450 Nos.) is in the production process.</p>



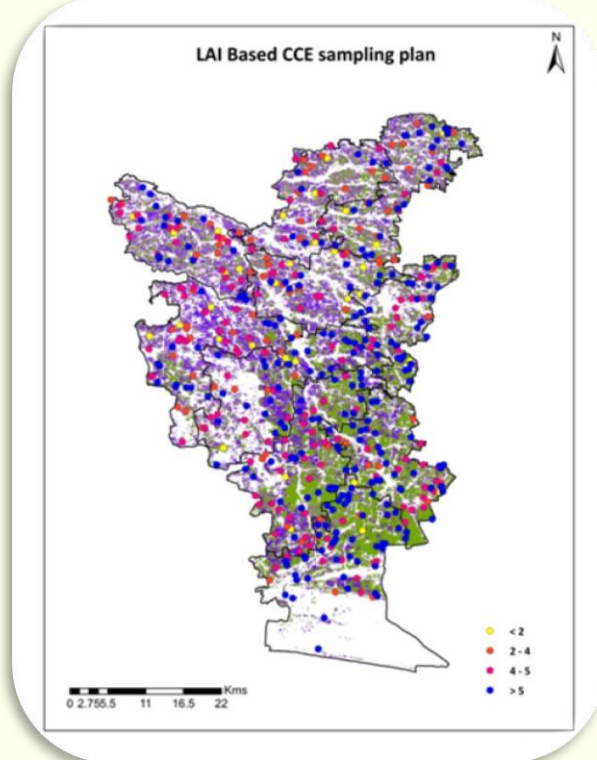
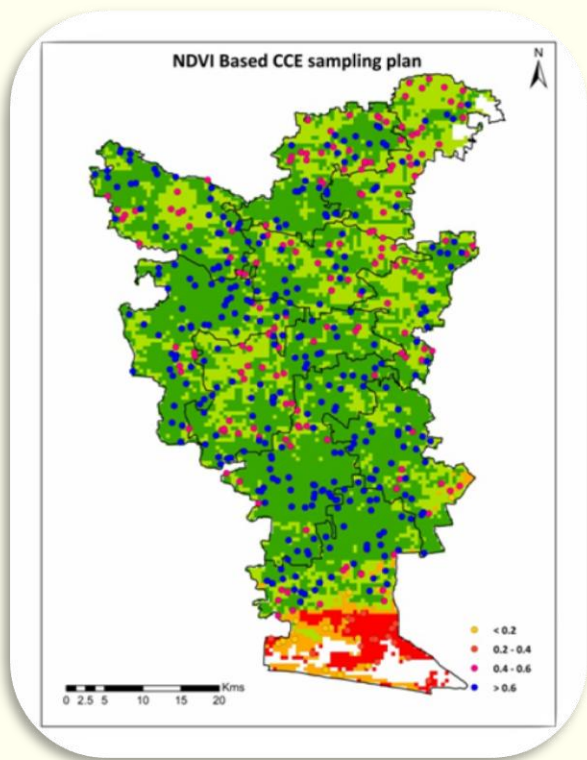


III Crop Management

1. Automatic Weather Station

No	Recommendations	Action Taken
1	<p>i. All 385 AWS inspected. To bring 285 AWS to working condition, the unspent balance of Rs.1.94 crore in NADP may be utilized.</p> <p>ii. Registrar, TNAU to send proposal within 3 days requesting permission to utilize Rs.1.94 crore for taking up repair of 285 AWS.</p> <p>iii. Remaining 100 AWS to be relocated to Government office/institution premises.</p> <p>iv. DDA (General) from DoA office to visit CRA office and confirm whether the data from 50 AWS are being utilized for the weather forecast purposes.</p> <p>v. A technical person from TNAU to train the officers of CRA office and DoA office on the interpretation of AWS weather data before 5th December 2019.</p> <p>vi. 4-5 days' advance weather forecast should be made available in Uzhavan App.</p>	<p>Submitted a proposal by Registrar on 13.01.2020 to APC & PS. In turn to 18thSLSC (26.2.2020) for approval.</p> <p>On receipt of the approval, 285 AWS can be made functional.</p> <p>Places for relocating 100 AWS will be identified in consultation with CRA and DoA.</p> <p>Weather data from 50 AWS are being sent daily to CRA from ACRC, TNAU, Coimbatore.</p> <p>TNAU trained 15 Nos. of CRA and DoA officials on 5.12.2019.</p> <p>Once 285 AWS made functional, the details can be made available to UzhavanApp</p> <div style="text-align: right;">  <p>(Action : DCM, DoA)</p> </div>

No	Recommendations	Action Taken
2	<p>Satellite based Smart sampling to assess the crop out turn:</p> <p>(Action : DNRM, RS&GIS, DoA)</p> <p>DoA to follow up with GOI and inform the status in the March meeting.</p>	<p>RS & GIS developed smart sampling methodology for organizing and optimizing crop cutting experiments in Rice</p> <p>As per the remarks of the SWC, a proposal was submitted to the DOA for onward transmission, approval and utilization under PMFBY (22.11.2019).</p> <p>Awaiting for the GOI approval in turn from DOA</p>



Homogeneity created by Start of the Season (SoS), Leaf Area Index (LAI) and Normalized Difference Vegetation Index (NDVI).

No	Recommendations	Action Taken
3	<p>Protocol for Palmyra cultivation has to be given to DoA & DHPC</p> <p>(Action : DR, DoA, DHPC)</p>	<p>Protocol has been given to DoA and DHPC and in turn circulated to field level officials.</p> <p>4500 Palmyra nuts available with TNAU to be procured by DoA.</p>
4	<p>Scientific validation of Zero Budget Natural Farming:</p> <p>ICAR across 20 locations in the country on ZBNF is being examined</p> <p>(Action : DCM, SoA)</p>	<p>Scientific validation of ZBNF experiment has been initiated in TNAU with sorghum + cowpea and is under vegetative stage.</p> <p>The ICAR suggested ZBNF data require scientific validation and data to be presented only after three years of the experiment.</p> <p>Annexure - 4</p>



Advantage BJP

In Maharashtra, as the opposition is stuck in the past, the ruling party is promising change

As campaigning gains momentum in Maharashtra for the Assembly election on October 21, the ruling BJP has reinforced itself and disoriented the opposition. With this election, the slow changes in Maharashtra politics over the last five years have taken shape. Devendra Fadnis is the first non-Congress Chief Minister in the State to complete a five-year term. He has dismissed external parties and focused

Stirring up the truth about ZBNF

Zero Budget Natural Farming has no scientific validation and its inclusion into agricultural policy appears unwise



R. RAMAKUMAR & ARJUN S.V.

Most criticisms of modern agricultural practices are criticisms of post-Liebig developments in agricultural science. It was after the pioneering work of Justus von Liebig and Friedrich Wöhler in organic chemistry

organic farming. For him, "organic farming" is "more dangerous than chemical farming", and "worse than [an] atom bomb". He calls vermicomposting a "scandal" and *Eisenia foetida*, the red worm used to make vermicompost, as the "destructor beast". He also calls Steiner's biodynamic farming "bio-dynamite farming". His own alternative of ZBNF is, thus, posed against both inorganic farming and organic farming.

Mr. Palekar's premise is that soil has all the nutrients plants need. To make these nutrients available



ment of Andhra Pradesh has a report, but it appears to be a self-appraisal by the implementing

or aluminium, manganese and iron toxicities. In certain other regions, soils are toxic due to heavy metal pollution from industrial and municipal wastes or excessive application of fertilizers and pesticides.

On their part, agricultural scientists do identify the improper/imbalanced application of fertilizers, that too with no focus on micronutrients, as a matter of concern. Hence, they recommend location-specific solutions to nurture soil health and sustain increases in soil fertility. They suggest soil test-

nitrogen requirements of Indian soils.

Finally, the spiritual nature of agriculture that Mr. Palekar posits is troublesome. Some of his statements are odd. He has claimed that because of ZBNF's spiritual closeness to nature, its practitioners will stop drinking, gambling, lying, eating non-vegetarian food and wasting resources. For him, only Indian Vedic philosophy is the "absolute truth". By placing cows at the centre of ZBNF, he (wrongly) claims that India's cattle population is falling. From these

ZBNF Disclaims

Involves costly inputs

Imbalanced nutrient budgeting

Sustainability ??

Spirituality rather than scientific

No	Recommendations	Action Taken
5	<p>Technology for redgram transplantation</p> <p>Redefined Protocol</p> <p>Seeds sown in Protrays instead of polybags and transplanted to the main field from 14 to 15 days.</p> <p>Integration of Bioinoculants such as <i>Pseudomonas</i>, <i>Trichoderma</i> and Mycorrhiza in pot mixture</p> <p>Direct transplanting at optimum soil moisture</p> <p>Conventional irrigation instead of drip fertigation</p> <p>Inclusion of BRG 4 variety.</p> <p>(Action : DCM)</p>	<p>Portrays having 72 plugs had a problem of root coiling and to circumvent the problem, 50 plugs portrays were employed and successfully used for the development of redgram seedlings with coiling of roots</p> <p>Grain yield Conventional - 1222 kg/ha Transplanted - 1564 kg/ha % increase - 21.8%</p> <p>Cost of Cultivation Conventional - Rs. 44,458/ha Transplanted - Rs. 59,800/ha</p> <p>Economics - BC Ratio Conventional - 1.53 Transplanted - 1.78</p>



Solution

Use of 50 plug portrays to prevent root coiling

Direct transplanting

Large scale demo required

6. Drip irrigation in different ecosystems of rice



Experiments conducted in Western Zone, Cauvery Delta Zone and Southern Zone

Water saving - 32 - 45%.


Reduction in yield by 12.7% as recorded in Madurai and other centres recorded comparable yield of 4.5 to 5.2 ton/ha.

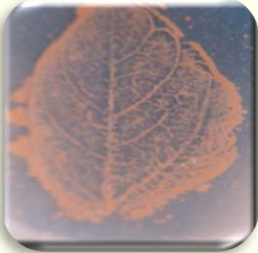



Studies under various soil types (light to heavy textured soils) and different water regimes in different stages of the crop growth.


During the early stages, **weed growth** poses a major threat followed by yellowing of leaves and slow establishment was observed.

(Action : DWTC)

No	Recommendations	Action Taken
7	<p>Necessity of De-topping for bud chip seedling planting:</p> <p>(Action : DWTC, DCM)</p>	<p>De-topping facilitates tillering by arresting apical dominance.</p> <p>After the establishment of bud chip plants, the mother shoot may be cut at one inch above the ground level with a revolving scissor or pencil knife.</p> <p>This will ensure more number of tillers and millable canes per plant (20 to 24). Initially, it is better to try this practice in a smaller area and extend further based on the success rate. It consumes 10 labourers per ha.</p> <p>The protocol has been communicated to the Commissioner of Sugar for circulation to sugar mills.</p>
8	<p>Standard Operational Protocol (SOP) for organic production</p> <p>(Action : DCM, SoA)</p>	<p>The organic package of practices for Rice, Cotton, maize and Sunflower have been incorporated in CPG 2020 (Agriculture)</p> <p>Hilly organic vegetable production is under evaluation involving HRS, Ooty Annexure – 6</p>

No	Recommendations	Action Taken
9	<p>Supply of TNAU Groundnut Rich Booster</p> <p>Indent for 50 Kgs to test in SHFs Musaravakkam, Bhavanisagar, Vellalarviduthi, Neyveli and Vinayagapuram in an area of 1 ha each during Rabi 2019-20.</p> <p>(Action : DCM, DoA)</p>	<p>No Indent received from DoA</p> <p>Foliar spray @2 kg/acre dissolved in 200 litres of water at peak flowering and pod development stages. Total: 4 kg/acre</p>
10	<p>Eco-friendly method of driving away wild boar menace</p>  <p>(Action : ABD, DR, FC&RI, MTP)</p>	<p>Trials in multilocation with the "Herboliv-Wild Animal Repellent" is scheduled to be conducted by a Wild Life Biologist</p> <p>Dr. Bharanidharan, Asst. Prof. (Forestry), Forest College and Research Institute, Mettupalayam.</p> <p>Four locations</p> <p>Elephant – FC&RI, Mettupalayam Parrot & Wild Boar – ARS, Bhavanisagar Peacock – AC&RI, Madurai</p>

No	Recommendations	Action Taken
11	<p data-bbox="142 162 915 287">Production & Supply of Pink Pigmented Facultative Methylobacterium (PPFM) by TNAU</p>  	<p data-bbox="948 162 1271 197">PPFM Production</p> <p data-bbox="948 208 1354 244">Lignite based - 152.4 Kg</p> <p data-bbox="948 251 1309 287">Liquid - 31375.5 litres</p> <p data-bbox="948 339 1866 418">Rapid mass production with low cost medium has been standardized.</p> <p data-bbox="948 472 1702 508">Mass production of PPFM using NADP centers</p> <p data-bbox="948 561 1435 596">(Action : DNRM, HOD, AGM)</p>
12	<p data-bbox="142 696 877 775">Development of Zinc solubilizing liquid biofertilizer</p>   <p data-bbox="142 1272 726 1308">(Action : DNRM, HOD, AGM, ABD)</p>	<p data-bbox="948 696 1856 818">Zinc solubilizing liquid biofertilizer was developed with the efficient Zinc solubilizers viz., <i>Enterobacter cloacae</i> (ZSB14) and <i>Pseudomonas chlororaphis</i> (ZSB15).</p> <p data-bbox="948 872 1696 908">Increase the soil available Zn up to 10 mg/kg</p> <p data-bbox="948 961 1808 996">ZSB with zinc phosphate will increase Zn & P in soil.</p> <p data-bbox="948 1049 1875 1128">Yield increase (15-20%) along with Zn content in grains (25-30 mg/kg)</p> <p data-bbox="948 1180 1335 1216">Application Methods</p> <p data-bbox="948 1226 1657 1262">Seed treatment: 125 ml/ha of paddy seeds</p> <p data-bbox="948 1269 1553 1305">Seedling dip: 500 ml/ha of seedlings</p> <p data-bbox="948 1312 1389 1348">Soil application: 500 ml/ha</p>

No	Recommendations	Action Taken
13	<p>Multi-micronutrient liquid formulation for drip fertigation</p>  <p>(Action : DNRM, SS&AC)</p>	<p>Multi-micronutrient liquid form comprising of Zn, Fe, Cu, B, Mn and Mo was evolved with suitable stabilizing agent.</p> <p>Tested in farmers in Kinathukadavu (Hybrid tomato) and Thondamuthur (Chillies) taluks .</p> <p>Drip fertigation with liquid multi-micronutrient yielded 20% higher yield in hybrid tomato (Angoor 2767)</p> <p>Foliar spray (1%) in rice yielded 33% higher yield than control and 10% higher than conventional micronutrients.</p>



TNAU Multi-Micronutrient Liquid Formulation



Either as drip fertigation or foliar spray consistently yield higher





IV Horticulture



No	Recommendations	Action Taken
1	<p>Multiplication of hybrid vegetable seeds in Farmers' fields TNAU and Department officials and availability of Hybrid vegetable seeds</p> <p>(Action : Dean (Hort.), DHPC)</p>	<p>Supplied 21.35 kg of breeder seeds of vegetables like Gourds, Amaranthus, Tomato, Chilli, Brinjal, Cluster beans for multiplication during 2020-21 as per intend.</p> <p>Officials of TNAU visited seed production plots in SHFs and to provide technical guidance</p> <p>The seeds were supplied for all the indents received during 2019-20. For 2020-21, no indents were received so for.</p>
2	<p>Production & Supply of vegetable grafts to DHPC</p> <div style="display: flex; justify-content: space-around;">   </div> <p>(Action : Dean (Hort.), DHPC)</p>	<p>The required no. of brinjal grafts have been supplied as per the Department indent.</p> <p>DHPC</p> <p>4,500 Brinjal grafts received from TNAU and planted in State Horticulture Farms for vegetable production</p> <p>Further indent will be placed based on the requirements</p>

No	Recommendations	Action Taken
3	<p data-bbox="141 118 1000 197">Intensification of research on hydroponics by TNAU</p>  <p data-bbox="141 649 710 692">(Action : Dean (Hort.), CBE/PKM)</p>	<p data-bbox="1137 164 1845 242">Hydroponics system in TNAU is high cost model.</p> <p data-bbox="1137 297 1816 425">Work is in progress for developing low cost model for commercialization to decrease the cost of production</p> <p data-bbox="1137 475 1864 604">Once the low cost model is developed, crop wise SOP for hydroponics will be standardized</p>
4	<p data-bbox="141 742 859 821">Purification of Mundu type Chillies for Ramanathapuram</p>  <p data-bbox="141 1270 710 1313">(Action : Dean (Hort.), CBE/PKM)</p>	<p data-bbox="1137 742 1854 906">Among 84 Mundu chilli accessions evaluated at HC & RI, Periyakulam, PKMCA 08, 20, 22, 30, 32 were found to be promising.</p> <p data-bbox="1137 963 1854 1135">41 accessions collected from Ramnad were planted on 05.09.2019. The first generation selfing is completed. Harvesting of selfed fruits is in progress</p> <p data-bbox="1137 1185 1835 1263">After purification, yield assessment will be done at Periyakulam and Ramnad.</p>

No	Recommendations	Action Taken																																				
5	<p>Improvement to be made in Shelf-life of onion variety (Co-On.5):</p>  <p>(Action : Dean (Hort.), Dept.NST)</p>	<p>New variety Co. 6 aggregatum onion has been released by TNAU in Jan. 2020</p> <p>Other strategy</p> <p>Hexanal vapour 600 ppm for 1 hr extended shelf-life of Co. 5 up to 5 months</p>																																				
6	<p>Popularization of Guava variety Arka Kiran (Red Pulp)</p>  <p>(Action : Dean (Hort.), DHPC)</p>	<p>DHPC</p> <table border="1" data-bbox="1045 761 1850 1353"> <thead> <tr> <th>SHF</th> <th>Mother plant</th> <th>Production</th> </tr> </thead> <tbody> <tr> <td>A Sathanur, Villupuram</td> <td>800</td> <td>0</td> </tr> <tr> <td>Moovanallur, Thiruvarur</td> <td>100</td> <td>0</td> </tr> <tr> <td>Melottivakkam, Kancheepuram</td> <td>100</td> <td>0</td> </tr> <tr> <td>Poonjuthi, Madurai</td> <td>300</td> <td>730</td> </tr> <tr> <td>Kanniyakumari</td> <td>500</td> <td>0</td> </tr> <tr> <td>Neyveli, Cuddalore</td> <td>1100</td> <td>0</td> </tr> <tr> <td>Vallathirakottai, Pudukottai</td> <td>550</td> <td>0</td> </tr> <tr> <td>Srivilliputhur, Virudhunagar</td> <td>100</td> <td>0</td> </tr> <tr> <td>Baguthampalayam, Erode</td> <td>150</td> <td>0</td> </tr> <tr> <td>Kudapattu, Thirupathur</td> <td>100</td> <td>0</td> </tr> <tr> <td>Total</td> <td>3,800</td> <td>730</td> </tr> </tbody> </table>	SHF	Mother plant	Production	A Sathanur, Villupuram	800	0	Moovanallur, Thiruvarur	100	0	Melottivakkam, Kancheepuram	100	0	Poonjuthi, Madurai	300	730	Kanniyakumari	500	0	Neyveli, Cuddalore	1100	0	Vallathirakottai, Pudukottai	550	0	Srivilliputhur, Virudhunagar	100	0	Baguthampalayam, Erode	150	0	Kudapattu, Thirupathur	100	0	Total	3,800	730
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No	Recommendations	Action Taken
7	<p>Introduction of new varieties and wilt tolerant rootstock in Avocado:</p> <p>(Action : Dean (Hort.), PKM, DODL)</p>  <p>Seedlings</p>  <p>Grafts</p>	<p>3500 grafts were produced with elite clones of lower Pulneys including TKD-1, Hallen, Hass, Fuerte, Yellow and Thille</p> <p>400 grafts were distributed and remaining plants will be supplied to farmers through NADP</p> <p>20500 elite avocado seedlings raised and 2800 distributed to farmers</p> <p>Resistant rootstocks University of California, Riverside, Viveros Brokaw Nursery, Spain, Brokaw Nursery LLC, California were contacted towards the purchase of Phytophthora resistant root stocks of avocado such as Zetmyer, Steddom, Uzi, Duke 7 and Toro Canyon.</p> <p>Further, Flowerdale Nursery and Landscaping, California has contacted for the purchase of high yielding elite avocado types such as Bacon (B), Pinkerton (A), Reed (A), Littlecado (A or B), Stewart (A), Mexicola (A) and Holiday (A) and the seedlings will be supplied during 2021 only.</p> <p>Import process is in progress.</p>




No	Recommendations	Action Taken															
8	<p>Protocol for packaging of Jasmine for export purpose:</p>  <p>(Action : Dean (Hort.), ABD)</p>	<p>The following Exporters use the jasmine packaging technology</p> <table border="1" data-bbox="801 349 1825 1063"> <thead> <tr> <th>No</th> <th>Details of the exporter</th> <th>Name of the Exporter</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>M/S. Vanguard Exports Sathyamangalam Flower Market Coimbatore M/S. Vanguard Exports Nilakottai Flower Market Dindigul</td> <td>Mr. Sethumadhavan 9443158200</td> </tr> <tr> <td>2.</td> <td>M/S. S.N. Flowers Villapuram Flower Market Villapuram, Madurai – 625 012</td> <td>Mr. Karthikeyan 9944931273</td> </tr> <tr> <td>3.</td> <td>M/S. Jai Flowers Kamarajar Flower Market F/B,116, Koyambedu Chennai – 600 107.</td> <td></td> </tr> <tr> <td>4.</td> <td>M/S. Mamko Impex Pvt. Ltd Coimbatore – 641 025.</td> <td>Mr.R.Senthilraj 9087785511</td> </tr> </tbody> </table>	No	Details of the exporter	Name of the Exporter	1.	M/S. Vanguard Exports Sathyamangalam Flower Market Coimbatore M/S. Vanguard Exports Nilakottai Flower Market Dindigul	Mr. Sethumadhavan 9443158200	2.	M/S. S.N. Flowers Villapuram Flower Market Villapuram, Madurai – 625 012	Mr. Karthikeyan 9944931273	3.	M/S. Jai Flowers Kamarajar Flower Market F/B,116, Koyambedu Chennai – 600 107.		4.	M/S. Mamko Impex Pvt. Ltd Coimbatore – 641 025.	Mr.R.Senthilraj 9087785511
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No	Recommendations	Action Taken
9	<p data-bbox="170 104 929 247">Engaging Protray filling pneumatic seed picking and sowing machine developed by TNAU in SHFs:</p>   <p data-bbox="170 1225 875 1332">(Action : Dean (Ag.Engg.), CBE, DHPC)</p>	<p data-bbox="1000 161 1141 204">TNAU</p> <p data-bbox="1000 275 1866 382">Fabrication of protray seeder is in progress under Revolving Fund Scheme.</p> <p data-bbox="1000 504 1145 546">DHPC</p> <p data-bbox="1000 618 1808 832">Pneumatic seed picking and sowing machine developed by TNAU was purchased for SHF, Thimmapuram on 06.11.2019.</p> <p data-bbox="1000 903 1814 1061">The average work performance of the machine was 80 trays per hour. The overall performance is good.</p>



V Crop Protection

No	Recommendations	Action Taken
1	<p data-bbox="142 201 890 305">Recommendation of Chemicals for crops</p> <p data-bbox="142 369 759 422">(Action : CPPS, DoA, DHPC)</p> <div data-bbox="156 505 571 768">  <p data-bbox="687 579 919 719">GPG 2020 Agriculture Horticulture</p> </div>	<ul data-bbox="996 194 1889 1090" style="list-style-type: none"> • All the CIB & RC recommended pesticides have been included in the revised CPG, 2020 • As per ASR, TNAU is empowered to give recommendations on the basis of research findings • New generation pesticides are being tested by TNAU through various sponsored trials and endowment Chairs • Potential molecules are incorporated in CPG of TNAU for the benefit of our farmers

No	Recommendations	Action Taken
2	<p data-bbox="141 182 826 401">Monitoring of Fall Army Worm by scientists and department officials to keep the incidence under control:</p> <div data-bbox="156 486 498 936">  <p data-bbox="247 668 407 758">Whorl damage</p> </div> <div data-bbox="575 486 821 715">  <p data-bbox="633 554 736 596">Eggs</p> </div> <div data-bbox="575 743 821 968">  <p data-bbox="658 825 736 868">Egg</p> </div> <p data-bbox="141 1039 600 1086">(Action : CPPS, DoA)</p>	<p data-bbox="880 172 1572 215">No. of Joint Diagnostic Visits : 388</p> <p data-bbox="880 272 1572 315">Awareness Campaigns : 428</p> <p data-bbox="880 372 1572 415">FLDs : 120</p> <p data-bbox="880 472 1644 515">Farmers beneficiaries : 42,000</p> <p data-bbox="880 572 1599 615">Input Dealers : 2350</p> <p data-bbox="880 672 1599 715">Extension Officials : 2600</p> <p data-bbox="880 772 1856 815">International Conference : March 4-5, 2020.</p>

- During Kharif 2019-20, **1,37,000/-ha** under maize in **22 Dts** of Tamil Nadu
- Damages – Leaf (**54.5%**), whorl (**42.4%**), tassel (**8.5%**), cob (**5.2%**)



VI Post-harvest Management

No

Recommendations

Action Taken

- 1 **Use of Agri-Nano products**
Nano stickers on shelf-life of Mango and Banana were tested in 7 districts



i

(Action : DNRM, DHPC, CAM-AB)

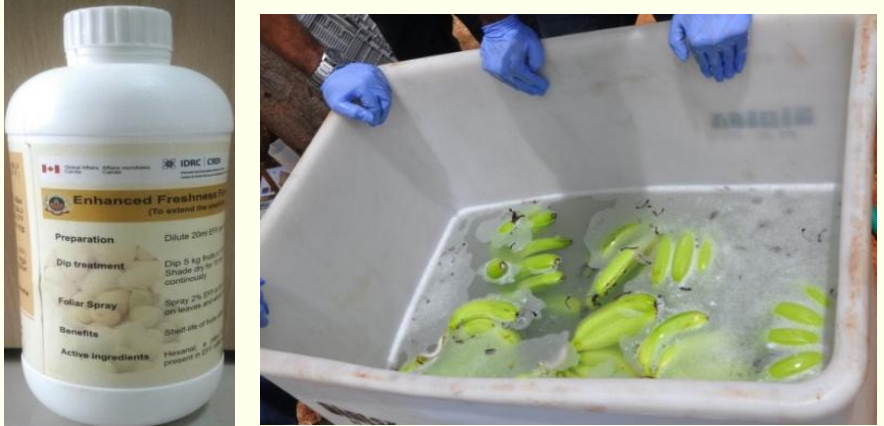
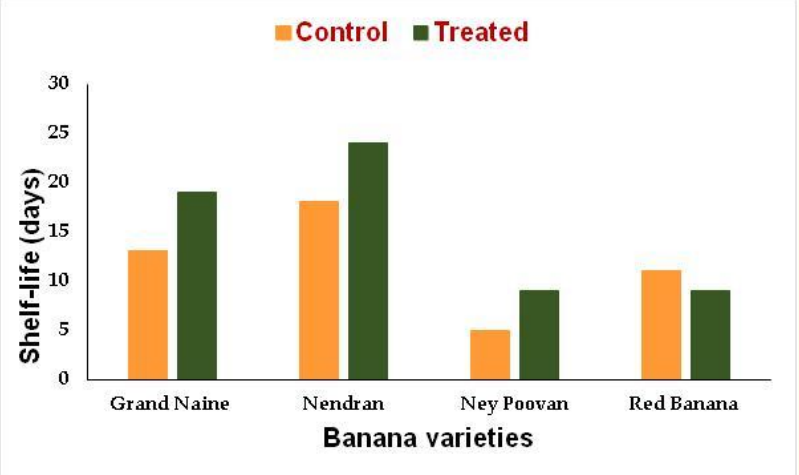
Nano-Stickers assisted in shelf-life of banana by 11-14 days regardless of varieties

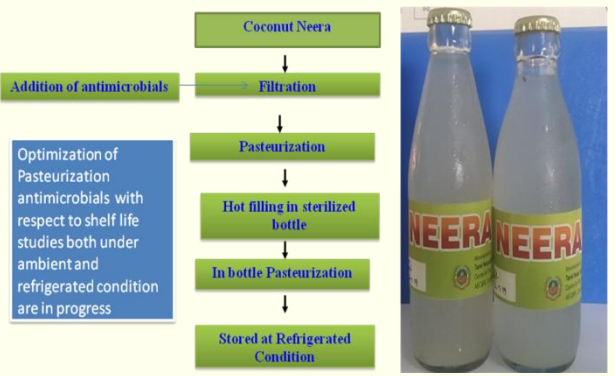

One day **capacity building programme** for officials of 7 districts on **06.02.2020**.




Shelf-life of Banana Fruits (days)

District	Control	Dip	Nano Sticker
Trichy (Elakki)	6	11	14
Trichy (Grand Naine)	7	11	12
Theni (Grand Naine)	7	9	14
Dharmapuri (Poovan)	7	11	12
Erode (Grand Naine)	7	10	13
Kanyakumari (Nendran)	6	10	11


No	Recommendations	Action Taken															
ii	<p>ii. Nano-emulsion for dipping:</p> <p>Large scale demonstration of dipping of banana in nano-emulsion was done in 2018 -2019.</p> <p>The dipping was not effective in Red Banana. The shelf life was extended to 2-3 weeks in Grand Naine and Nendran.</p> <p>1 week shelf-life for Nei Poovan. The desired effect will be there only if the produce is at 80% maturity.</p> <p>The technology does not work on fully matured fruits.</p> <p>(Action : DR)</p>	 <p>Nano-Emulsion Treated Fruits Stayed Fresh Longer</p>  <table border="1"> <caption>Shelf-life (days) for different banana varieties</caption> <thead> <tr> <th>Banana varieties</th> <th>Control (days)</th> <th>Treated (days)</th> </tr> </thead> <tbody> <tr> <td>Grand Naine</td> <td>13</td> <td>19</td> </tr> <tr> <td>Nendran</td> <td>18</td> <td>24</td> </tr> <tr> <td>Ney Poovan</td> <td>5</td> <td>9</td> </tr> <tr> <td>Red Banana</td> <td>11</td> <td>9</td> </tr> </tbody> </table>	Banana varieties	Control (days)	Treated (days)	Grand Naine	13	19	Nendran	18	24	Ney Poovan	5	9	Red Banana	11	9
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No	Recommendations	Action Taken
2	<p>Technology to extend the shelf life of Neera:</p> <p>(Action : Dean, KKM; Dean (Agrl.Engg.,) PHTC)</p> <p>Sequential Filtration</p>  <p>Membrane Filtration System</p>  <p>Ambient 4-7d; Cold 35 d</p>	<p>TNAU sanctioned three mini-projects under ERDF and the work i(PHTC, AEC & RI, Coimbatore; Nanotechnology, DNRM; AC & RI, Killikulam)</p> <p><u>PHTC (in progress)</u></p> <p>Neera can be preserved up to 30 days of storage under refrigerated condition and 7 days under ambient conditions when thermal processing was done at 70°C for 10 min with chemical preservatives @150 to 300ppm .</p> <p><u>AC & RI, Killikulam (Device developed)</u></p> <p>Mini sequential membrane filtration system developed</p> <p>Microbial preservative used for Palmyrah Neera</p> <p>For effective Neera collection from the farmers, development of mobile based software (Mobile App) is under progress.</p>

No	Recommendations	Action Taken
3	<p data-bbox="142 145 794 247">Research to improve the shelf life of groundnut seeds</p> <p data-bbox="142 496 794 768">Study the suitability of nano ZnO @ 1g kg⁻¹ kernel treatment for maintaining the storability of groundnut kernels.</p> <p data-bbox="142 911 614 953">(Action : D-Seeds, DoA)</p>	<p data-bbox="890 151 1889 425">The protocol for storage of groundnut pods with Calcium chloride @ 250 g per 30 kg of pods to improve shelf life was already sent to the DoA by Director of Research, TNAU, Coimbatore on 11.12.2019</p> <div data-bbox="1022 458 1769 748" style="text-align: center;">  </div> <p data-bbox="890 782 1889 1001">Seeds treated with ZnO maintained viability upto nine months with a germination of 70% while, the control seeds recorded only 52% germination</p> <p data-bbox="890 1125 1889 1225">Bio-safety issues with NPs of Zinc oxide need to be studied prior to recommendation</p>



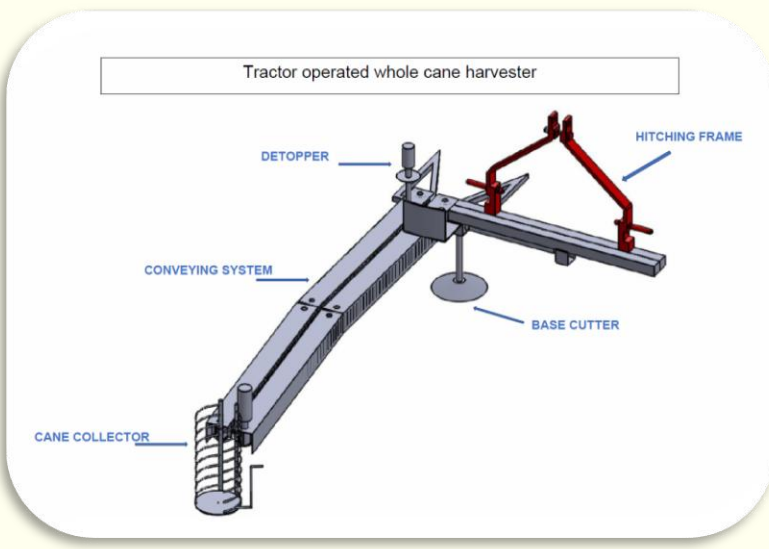
VIII Mechanization & Post-harvest Engineering

No	Recommendations	Action Taken
1	<p data-bbox="142 154 778 429">Study of Groundnut seed drill developed by TNAU and modified as a paired row former cum seed drill by a farmer in Tindivanam</p> <p data-bbox="142 496 759 601">(Action : Dean (Agrl.Engg.); AED)</p>	<p data-bbox="890 154 1889 334">Plant population was 21 nos/m² in raised bed paired row system of cultivation (33 nos /m² in conventional).</p> <p data-bbox="890 418 1889 594">The yield recorded was 400 kg/acre under paired row system as against 600 kg/acre from conventional method.</p> <p data-bbox="890 678 1889 793">Further testing trials will be carried out in the ensuing season at ORS, Tindivanam</p> 

No	Recommendations	Action Taken
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2 **Development of small machines for harvesting and de-trashing in sugarcane**

(Action : Dean (Agrl.Engg.); AED; CoS)



Development of wholecane harvester for small farmers at ICAR CIAE Regional centre, Coimbatore

Conceptual **tractor operated whole cane harvester** consists of hitching frame, base cutting system (with adjustable height), Detopping system (with height adjustable), cane conveying system and cane collector.

Operated by **60 HP tractor** in fields of sugarcane row to row spacing of four/five feet.

This is a tractor side mounted offset single row harvester. The **CAD drawing** for development of whole cane harvester has been prepared with individual components and fabrication of components is in progress.



IX Synergy
TNAU & Departments

Centre of Excellence, DARS, Chettinad



Year	Districts Covered	Farmers	Officials	Students
2020	16	940	105	35
2019	21	2350	290	670
2018	19	942	311	647
2017	14	838	120	291

**Monthly Zonal Workshops
Conducted for Dept. Officials**

Centre of Excellence for Innovations

AC & RI, Madurai



GC-MS



XRF



AA Analyzer



BLB resistant rice culture



Greenhouse

Beneficiaries
Students – 52
Faculty – 112
Analytical services
Sophisticated equipments

Centre of Excellence for Molecular Breeding

Dept. of Rice



Traditional Landraces



Low glycemic index rice



Outcome

150 land races screened for glycemic index, amylose and amylopectin

Training

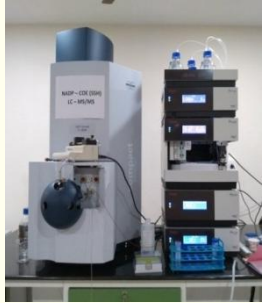
Faculty & Students – 22

Analytical services

Centre of Excellence for Soil Health

ADAC & RI, Trichy

State-of-the-art Analytical & Advisory Facility



LC MS/MS



MALDI TOF



GC MS/MS



UV Vis
Spectrometer



FT IR
Spectrometer



Open Top
Chamber



Pressure Plate
Apparatus



Deep freezer

Facilities

Pesticide residue analysis
Organic produce testing
Volatile analysis

Beneficiaries

Soil Analytical services
Farmers – 45; Industries – 7

Students – 23

Faculty – 10

Training organized
8 Batches (25 per batch)

Centre of Excellence in Oilpalm

ARS, Pattukottai



Beneficiaries



Year	No. of Training	No. of participants	Beneficiaries
2019-20	11	466	Farmers from 8 Dts of TN
2018-19	3	120	Farmers from 3 Dts of TN
2017-18	5	185	Farmers & DA officials
2016-17	13	505	Farmers & DA officials
2015-16	1	40	Farmers from 2 Dts
2014-15	5	100	DA officials, KVKs, Industries

No	Recommendations	Action Taken
2	<p>Conduct of MLTs in SHFs/SSFs to observe the actual performance:</p> <p>(Action :CPBG)</p>	<p>MLTs raised during <i>Kharif / Rabi</i> seasons in all Plant Breeding centres of TNAU every year.</p> <p>Visiting farmers / Department officials will be explained by the respective scientists</p>
3	<p>Access to FLDs, MLTs for officials and farmers and Minikits of new varieties:</p> <p>(Action :CPBG)</p>	<p>MLTs and FLDs trials laid out for Horticulture crops were sent by Dean, Horticulture on 1.11.2019.</p> <p>MLTs are raised during <i>Kharif / Rabi</i> seasons in all Plant Breeding centres of TNAU every year.</p> <p>Upon the visit of Farmers / Department officials the details of trials could be explained by the respective scientists</p>

No	Recommendations	Action Taken
4	<p>Conduct of Adaptive Research Trials (ARTs)</p> <p>(Action : DoA; DHPC)</p>	<p>ARTs laid out for Horticulture crops was received from TNAU vide letter No. Dean(Hort) /HC&RI1 /SWC/Minutes follow up dated 1.11.2019.</p>
5	<p>Training by TNAU on Seed pelleting to department officials</p> <p>(Action : D.Seeds)</p>	<p>“Seed quality enhancement techniques including seed pelleting and coating” were given to seed producers and farmers during 3rd - 4th October, 2019 and to the Officials of DOA on 30th - 31st, October, 2019 with NABARD funding</p> <p>“Value addition of seeds through seed pelleting techniques for better crop establishment and enhanced productivity” training proposal for Rs.1.53 lakhs sent to the Commissioner of Agriculture Marketing and Agri Business, Govt. of Tamil Nadu on 05.11.2019 for funding. Reply is awaited.</p>

No	Recommendations	Action Taken
6	<p data-bbox="141 139 720 264">Model fields for particular varieties by TNAU at KVKs and Research Stations:</p> <p data-bbox="141 318 759 578">Director of Research and Director Extension Education instructed all Research Station Heads and KVK Co-ordinators to exhibit model farms to portrait TNAU varieties and technologies</p> <p data-bbox="141 935 469 978">(Action : DR; DEE)</p>	<p data-bbox="801 139 1860 264">a. DARS, Chettinad, Sivagangai District Dryland technologies, silvi-pasture - horticulture systems, solar pump, machineries for Value added products</p> <p data-bbox="801 318 1744 399">b. ARS, Bhavanisagar, Erode District Groundnut BSR 2, Complete Farm mechanization in Rice.</p> <p data-bbox="801 454 1744 492">c. RRS, Tirur, Thiruvallur District Rice variety (TKM 13).</p> <p data-bbox="801 546 1860 621">d. TCRS, Yethapur, Salem District Castor varieties (YRCH 1 & 2, YTP 1) Tapioca (Me 681).</p> <p data-bbox="801 675 1821 714">e. ARS, Vaigai Dam, Theni District Seeraga samba (VGD 1).</p> <p data-bbox="801 768 1763 842">f. RRS, Arupukottai, Virudhunagar District Assemblage of Arid Fruits, Composting of organic wastes.</p> <p data-bbox="801 896 1725 978">g. ARS, Kovilpatti, Thoothukudi Dryland technologies, sorghum varieties (K 12), IFS.</p> <p data-bbox="801 1032 1841 1106">h. RRS, Paiyur, Krishnagiri District Rice SRI technique with Paiyur 1 variety, High density planting in mango.</p> <p data-bbox="801 1160 1686 1199">i. SRS, Cudallore & Sirugamani – Sugarcane varieties</p> <p data-bbox="801 1253 1619 1292">j. FC & RI, MTP – Multi-functional Agro-Forestry</p> <p data-bbox="801 1346 1619 1385">k. HC & RI, PKM – High Density Guava Planting</p>



X Others

No	Recommendations	Action Taken
1	<p>Seed Procurement Problems faced by TNAU</p> <p>Intent finalization meeting with TANSEDA Officials for foundation and certified seeds also is to be done during the month of April every year as being followed for breeder seeds</p> <p>Adoption of uniform sale price of seeds by both TNAU and TANSEDA.</p> <p>(Action : CPBG; D-Seeds)</p>	<p>Intent finalization meeting with TANSEDA Officials for foundation and certified seeds will be organized during the month of April, 2020</p> <p>Seed procurement price has been fixed uniformly both by TNAU and TANSEDA. However, sale price of pulses has been recently revised by TNAU according to the local market price on 25.01.2020. TANSEDA has to revise the sale price of pulses on par with TNAU</p>
2	<p>Trend Analysis in Area, Production & Productivity of Paddy, Pulses, Groundnut, Sunflower and Vegetables in major districts and recommendation for bridging the gap</p> <p>DHPC to provide funds for the study and ensure coordination by district officials.</p> <p>(Action : DCARDS)</p>	<p>Details in Annexure 12</p> <p>Vide letter No. MIS/12682/2018 dated 13.02.2020 an amount of Rs. 3.56 lakhs sanctioned to TNAU to undertake sample study for the selected Horticulture Crops viz., Banana, Brinjal, Bhendi and Tomato in selected districts.</p>

No	Recommendations	Action Taken
3	<p>Impact Evaluation of Mirco Irrigation and Solar powered pumping systems, Water Harvesting Systems created under Mission on Sustainable Dryland Agriculture and Solar driers schemes by CARDS, TNAU</p> <p>(Action : DCARDS, Dean (Agrl.Engg.), DWTC)</p>	<p>Details in Annexure 13 & 14</p>
4	<p>Activities of Agri Business Incubation Centre</p> <p>(Action : ABD)</p>	<p>DPRs for commercially viable technologies are being prepared</p> <p>Technology Expo, Business Incubation Innovation Expo will be held in April 2020.</p> <p>MoU signed on 03.03.2020 between TNAU and M/s. Bhuvu Care Pvt. Ltd., Tirunelveli for TNAUSWEETFLAG 6% EC.</p> <p>Commercialization of TNAU biomineralizer technology and Nano Products are under progress.</p> <p>Nine food processing technologies has been sent CAM-AM</p> <p>AGPREUN – Student Entrepreneurship Club in all the constituent colleges of TNAU.</p> <p>Six Trainings on export and import of agricultural commodities have been given to 91 members.</p> <p>TBI Society and Agri Business Incubation Forums (ABIF) are helping start-ups and innovators</p>

No	Recommendations	Action Taken
4	<p>Testing of Universal Solar Pump Controller for its efficiency:</p> <p>(Action : Dean (Agrl.Engg.,))</p>	<p>A Solar pump controller (USPC) is in the process of purchase and fit in existing solar pump. Once it is installed, it will demo to the farmers</p> <p>The same system can be used for chaff cutting, cold storage, cleaning of grains</p>
5	<p>Documentation on Market preference for TNAU released varieties for large scale adoption:</p> <p>(Action : DCARDS)</p>	<p>Details in Annexure 15</p>