TAMIL NADU AGRICULTURAL UNIVERSITY

PROCEEDINGS

38th Oilseeds Scientists Meet 2020
(May 23, 2020)

Lead Centre

Regional Research Station
Vridhachalam – 606 001

Directorate of Research

Tamil Nadu Agricultural University
Coimbatore 641 003

2020

PROCEEDINGS

38th Oilseeds Scientists Meet 2020
(May 23, 2020)

The 38th Oilseeds Scientists Meet was conducted on 23.5.2020 in Anna Auditorium involving 50 scientists off-line and more than 240 scientists on-line covering all college campuses, research stations and KVKs.

Dr. N. Kumar, Vice Chancellor, TNAU, has set the stage for the event. He suggested that the edible oilseeds production has doubled in the past 20 years that commensurate with increased production while productivity remains unchanged. Consequently, the country imports oilseeds worth of Rs. 75,000 Crores. In Tamil Nadu, except groundnut other oilseed crops had a drastic decline in both area and production. The Vice Chancellor informed the scientists that issues such as interspecific hybridization, poor viability of groundnut seeds, parrot damage in sunflower and exploring the possibility of using castor oil for biodiesel production. Research on tree borne oil can be exploited. During the discussion, the Vice Chancellor indicated that it is learnt that TMV 2 is the only variety registered in OECD and Director (Seeds) can explore the possibility for adding more TNAU varieties to get better visibility.

Dr. K.S. Subramanian, Director of Research flagged off certain issues being frequently referred by the Department of Agriculture. The TNAU has released 76 oilseeds varieties till date. Urging issues such as developing strategies to combat parrot menace, breeding of monostem sesame varieties, white seeded sesame, oils rich in omega 3 fatty acids, re-visiting safflower research, production and distribution of castor varieties and hybrids to augment revenue generation, addressing emerging minor pests and early detection of afflatoxin.

Dr. S. Geetha, Director (CPBG), **Dr. V. Geethalakshmi,** Director (Crop Management and **Dr. K. Prabakar,** Director (CPPS), presented the research highlights, action taken on previous Crop Scientists Meet and Action Plan for the year 2020-2021 of their respective directorates and departments involved. The Vice Chancellor offered concluding remarks and the Director of Research summarized the event.

The proceedings of the 38th meet are furnished below in the following headings:

1. CROP IMPROVEMENT

1.1. Action plan projects
1.2. Entries for variety release proposal /OFT/ART/MLT
1.3. Research Projects and remarks

2. CROP MANAGEMENT

2.1. Action plan projects
2.2. Technologies for adoption/OFT
2.3. Research Projects and remarks

3. CROP PROTECTION

3.1. Action plan projects
3.2. Technolgies for adotion/OFT/Information
3.3. Research Projects and remarks

4. GENERAL REMARKS OF THE VICE CHANCELLOR

5. REMARKS OF THE DIRECTOR OF RESEARCH

6. PARTICIPANTS

1. CROP IMPROVEMENT

1.1. Action Plan Projects
A. Action Plan 2019-2022

The Action plan will be continued for the second year with identified scientists towards achieving the deliverables in Crop Improvement.

Theme No 1	**Identification of high yielding, early duration (90-95 days) groundnut variety**			
Theme Leader	**Dr. A. Mothilal, Professor (PBG) and Head, RRS, Vridhachalam**			
Name of the scientists and centre	**2019-20**	**2020-21**	**2021-22**	**Deliverables/expected out come**
Vridhachalam Dr. A. Mothilal, **Coimbatore** Dr.PL.Viswanathan, **Bhavanisagar** Dr.B.Meena Kumari **Tindivanam** Dr.Kanchanarani, **Vazhavachanur** Dr. M. Vaithiyalingan, **Aliyarnagar** Dr. C. Ushamalini **CPMB, Coimbatore** Dr. D. Uma,	(i) Seed multiplication at VRI & confirmation of earliness at VRI, CBE, YTP, MDU, BSR, VVR & TMV. (ii) Field screening at ALR (June-July)	Seed increase of shortlisted entry during kharif 2020. Oil quality analysis	OFT / ART (June-July)	Release of early duration (90-95 days) groundnut variety
	MLT – I (Dec.-Jan) & Artificial screening for LLS & Rust resistance	Conduct of ART / OFT during rabi 2020-21	Submission of variety release proposal (Oct – Nov.)	

Multilocation Trial – Groundnut (Short duration)

Sl. No	Entries	Pedigree	Duration (Days)	Pod yield (kg/ha)	% Increase over GG7	Special attributes
1	VG 17008*	VRI 2 x IVK 2013-5	90	2500	20.4 (2075kg/ha)	Early, high yield
2	VG 17009	VRI 2 x IVK 2013-5	90	2408	16.0 (2075kg/ha)	Early, high yield
Checks : GG 7, K 6, Dharani, VRI 8, BSR 2						

*OFT / Particpatory appraisal will be conducted in 40 locations during *Rabi* / Summer 2020-21.

Locations: 56

Season	*Rabi* / Summer 2020-21
Districts	Thiruvallur, Kancheepuram, Villupuram, Vellore, Thiruvannamalai, Cuddalore, Salem, Namakkal, Erode, Coimbatore, Thiruchirappalli, Perambalur, Karur, Pudukkottai, Tanjore, Madurai, Theni, Virudhunagar, Sivagangai, Thirunelveli (40 Trials – Two trials in each district)
KVK	KVK, Sandiyur, KVK, Vridhachalam, KVK, Tinidvanam, KVK, Erode, KVK, Paparapatti, KVK, Perambalur, KVK, Vamban, KVK, Karur (16 Trials –2 trials in each KVK)

Note:

- Artificial screening for LLS & Rust resistance will be carried out by RRS, Vridhachalam
- Oil quality analysis will be carried out at Department of Biochemistry
- Expected date of sowing: Second fortnight of December 2020
- Sowing report should be submitted to the P&H, RRS, Vridhachalam with a copy to the DCPBG, CBE

Theme No 2	**Farmers participatory selection of semi spreading groundnut cultures under farmers holdings in Dharmapuri, Salem, Erode, Namakkal and Perambalur districts**			
Theme Leader	**Dr. A. Mothilal, Professor (PBG) and Head, RRS, Vridhachalam**			
Name of the scientists and centre	**2019-20**	**2020-21**	**2021-22**	**Deliverables /expected out come**
Vridhachalam Dr. A. Mothilal, **Coimbatore** Dr.PL.Viswanathan, . **Bhavanisagar** Dr.B.MeenaKumari **Yethapur** Dr.S.R.Venkatachalam, **Aliyarnagar** Dr.C. Ushamalini **Paiyur** MYRDA KVK and KVK, Perambalur	FPVS of cultures *viz.*, VG 16024, ICGV 07245, ICGV 07247, COG 0549 Checks: VRI Gn 7, ICGV 00348, CO 6 at Dharmapuri, Salem, Namakkal, Erode and Perambalur districts and natural screening at ALR (June-July)	Seed multiplication of promising entries Field and artificial screening for LLS & Rust disease resistance	OFT / ART of promising entries Oil quality analysis Field and artificial screening for LLS & Rust disease resistance.	Release of semi spreading groundnut variety for Dharmapuri, Salem, Erode, Namakkal and Perambalur districts
	Seed multiplication of promising entries (Dec-Jan)	Seed multiplication of promising entries	Submission of variety release proposal	

Multilocation Trial – Groundnut (Medium duration)

Design : RBD	No. of replications	:	Three
Plot size : 4 × 3 m^2	Seed Quantity	:	2.0 kg/entry/location
Spacing : 30 x 10 cm	Season	:	*Kharif*

S. No.	Culture	Parentage	Pod yield (kg/ha)	Duration (days)	Special features
1	VG 16024	VRI 2 x VRI Gn 7	3265	125-130	Drought tolerant,
2	ICGV 07245	[(ICGV 92069 x ICGV 93184)SIL 4 x (ICGS 44 x ICGS 76)]	2780	120-125	Drought tolerant, FDR
3	ICGV 07247	[(ICGV 92069 x ICGV 93184)SIL 4 x (ICGS 44 x ICGS 76)]	2825	120-125	Drought tolerant, FDR
4	COG 0549	TMV Gn 13 x ICGV 00203	3028	130	Drought tolerant, FDR
Checks		VRI Gn 7, ICGV 00348, CO 6			
Locations (08)		Vridhachalam, Coimbatore, Bhavanisagar, Yethapur, Aliyar Nagar, Paiyur, MYRDA KVK and KVK, Perambalur			

Note:

- Artificial screening for LLS & Rust resistance will be carried out by RRS, Vridhachalam and Dept. of Oilseeds, Coimbatore
- Oil quality analysis will be carried out at Department of Biochemistry
- Expected date of sowing: First fortnight of June
- Sowing report should be submitted to the P&H, RRS, Vridhachalam with a copy to the DCPBG, CBE

Theme No 3	**Development of high yielding groundnut genetic stocks with resistance to foliar diseases**			
Theme Leader	**Dr. A. Mothilal, Professor (PBG) and Head, RRS, Vridhachalam**			
Name of the scientists and centre	**2019-20**	**2020-21**	**2021-22**	**Deliverables/expected out come**
Vridhachalam Dr. A. Mothilal, **Coimbatore** Dr.PL.Viswanathan,	Hybridization: TMV 7 x VRI 6 [CBE]; VRI 2 x VRI 6 [VRI] and TMV 2 x VRI 6 [TMV]	Screening of F_2 population for resistance against LLS & rust diseases under natural conditions at CRS, Aliyarnagar.	Sharing of F_4 material and evaluation at Vridhachalam, Tindivanam and Coimbatore.	Development of groundnut genetic stocks with high yield and resistance to foliar diseases

Tindivanam Dr. Kanchanarani, **Aliyarnagar** Dr.C. Ushamalini	Fixing of F_1 and development of F_2	Evaluation of F_3 at RRS, Vridhachalam.	Observational trial at Vridhachalam, Tindivanam and Coimbatore	

Theme No 4	**Development of pre-breeding lines of groundnut**			
Theme Leader	**Dr. A. Mothilal, Professor (PBG) and Head, RRS, Vridhachalam**			
Name of the scientists and centre	**2019-20**	**2020-21**	**2021-22**	**Deliverables/expected out come**
Vridhachalam Dr. A. Mothilal,	Hybridization VRI6 x *A.monticola* (for thin shell) VRI6x *Arachis spp*. (stem rot/ collar rot)	Raising of double cross F1 (SSD), RRS, Vridhachalam	Raising of F_3 (SSD) RRS, Vridhachalam.	Development of groundnut genetic stocks
	Making double cross	Raising of F_2 (SSD) RRS, Vridhachalam.	Raising of F_4 (SSD) RRS, Vridhachalam.	

Theme No 5	**Evolution of high yielding, monostem / shy branching sesame varieties**			
Theme Leader	**Dr. A. Mahalingam, Asst. Professor (PBG), RRS, Vridhachalam**			
Name of the scientists and centre	**2019-20**	**2020-21**	**2021-22**	**Deliverables/expected out come**
Vridhachalam Dr. A. Mahalingam, Dr.C.Harisudhan **Coimbatore** Dr. PL.Viswanathan, Dr. R.Sasikala Dr. T.Selvakumar	Confirmation of mono stem / shy branching nature of genotypes (VRI, TMV, CBE, MDU, BSR & SVPR) and Seed multiplication of monostem / shy branching genotypes (COS 14017, COS 14018, VS 19036)	Seed multiplication of promising entry	Seed multiplication of promising entries	Release of high yielding, monostem / shy branching sesame varieties

Madurai Dr. C. Parameswari **Bhavanisagar** Dr.B.MeenaKumari **Srivilliputur** Dr. K. Thiyagu **Thindivanam** Dr. Kanchanarani	Evaluation under MLT & Spacing trials by Agronomist. (Vridhachalam and Coimbatore)	OFT / ART (Dec -Jan) OFT / ART (March - April)	Submission of proposal for release	

Multilocation Trial- Sesame-monostem / shy branching

S. No.	Culture	Parentage	Grain yield (kg/ha)	Duration (days)	Special features
1	COS 14017	Mutant of TMV 4	981	75	Monostem, white seed coat
2	COS 14018	Mutant of TMV 4	977	75	Monostem, white seed coat
3	VS 19-036	VRI 3 x EC 370840	950	70	Monostem, white seed coat
4	VS 19-045	VRI Sv 2 x E 8	945	70	Shy branching, Grey seed coat
Check		VRI 3 and TMV 7			
Locations (06)		Vridhachalam, Bhavanisagar, Coimbatore, Madurai, Sriviliputhur and Tindivanam			

Note:

- Date of despatch: 1st week of December for Rabi and 2nd week of March for Summer
- Expected date of sowing: 2nd week of December for Rabi and 3rd week of March for Summer
- Sowing report should be submitted to the P&H, RRS, Vridhachalam with a copy to the DCPBG, CBE

Theme No 6	**Development of maintainer line in sunflower with high oleic content using MAS**			
Theme Leader	**Dr. R. Sasikala, Asst. Professor (PBG), Dept. of Oilseeds, Coimbatore**			
Name of the scientists and centre	**2019-20**	**2020-21**	**2021-22**	**Deliverables/expected out come**
Coimbatore Dr. R. Sasikala, Asst. Professor (PBG)	Hybridization of promising maintainers with high oleic donor COSF6B x HO 5-29 & COSF12B x HO 5-29	BC_1F_1 evaluation and generation of BC_2F_1	BC_3F_1 evaluation	Identification high oleic maintainer lines
	Development of BC_1F_1	BC_2F_1 evaluation and generation of BC_3F_1	Evaluation of BC_3F_2 and identification high oleic maintainer lines	

Note: Sowing report should be submitted to the P&H, Dept. of Oilseeds, TNAU, Coimbatore with a copy to the DCPBG, CBE

Theme No 7	**Development of high yielding hybrids in sunflower with resistance to powdery mildew and alterneria leaf spot**			
Theme Leader	**Dr. R. Sasikala, Asst. Professor (PBG), Dept. of Oilseeds, Coimbatore**			
Name of the scientists and centre	**2019-20**	**2020-21**	**2021-22**	**Deliverables/expected out come**
Coimbatore Dr.PL.Viswanathan Dr. R. Sasikala Dr.L.Rajendran	Confirmation of F5 RILs(IR6xCSFI13022) and IR6xCSFI13023) for powdery mildew and alterneria under artificial screening	F_1 evaluation under PHYT	F_1 evaluation under AHYT-2	Identification high yielding hybrids with disease resistance
	Hybridization COSF7A and COSF12A with promising RILs	F_1 evaluation under AHY1	Propose promising hybrids for MLT	

Note: Sowing report should be submitted to the P&H, Dept. of Oilseeds, TNAU, Coimbatore with a copy to the DCPBG, CBE

Theme No 8	**Genetic enhancement and reconstitution of promising castor parental lines for the development of superior castor hybrids with wilt resistance**			
Theme Leader	**Dr.S.R.Venkatachalam, Professor (PB&G) and Head, TCRS, Yethapur**			
Name of the scientists and centre	**2019-20**	**2020-21**	**2021-22**	**Deliverables/expected out come**
Yethapur Dr.S.R.Venkatachalam Professor (PB&G) and Head Dr.P.Arutchenthil, Assistant professor (PB&G) Dr. M. Deivamani, Asst. Prof.(Patho)	Existing intrinsic variability for wilt resistance available in parental inbred lines (Pistillate and monoecious) will be subjected for selection in wilt sick plot	Evaluation of selected wilt resistant individual plants in progeny row trial	Confirmation of wilt resistance for selected lines and generation of superior hybrids for further evaluation	Identification of wilt resistant lines for the development of heterotic castor hybrids

Note: Sowing report should be submitted to the P&H, TCRS, Yethapur with a copy to the DCPBG, CBE

Theme No 9	**Unlocking Native Genetic Diversity and Population Structure in Castor**			
Theme Leader	**Dr. M. Raveendran, Professor (Biotech), CPMB, Coimbatore**			
Name of the scientists and centre	**2019-20**	**2020-21**	**2021-22**	**Deliverables/expected out come**
Yethapur Dr.S.R.Venkatachalam, Professor (PB&G) and Head Dr. S. Rajesh, Asst. Prof.(Biotech)]	Assembling diverse panel of castor lines at TCRS, Yethapur	Diversity analysis using DNA markers at CPMB	Population Structure Analysis and construction of AM Panel at CPMB	Identification of genetic marker associated with the trait of interest.

Note: Report should be submitted to the P&H, TCRS, Yethapur with a copy to the DCPBG, CBE

1.2. Entries for Variety release proposal OFT/ART/MLT

A1. Groundnut: Variety Release

VG 13163 (Spanish Bunch)

The Spanish bunch culture VG 13163 has been identified and recommended for release. The culture matures in 105-110 days. It recorded a mean pod yield of 2509 kg and 2929 kg/ha respectively under *kharif* and *rabi*/summer seasons, which is 5.01 per cent and 18.0 *per cent* superior over the best check varieties viz., BSR 2 and VRI 8. The newly evolved culture registered a mean shelling outturn of 70.0 per cent and a mean hundred kernel weight of 44 g. The oil content is 51 *per cent* with a O/L ratio (1.87). It is moderately resistant to late leaf spot and rust diseases (grade 4).

Parentage	VG 0420 x VRI Gn 6
Duration (in days)	105-110
Yield (kg/ha)	2509 kg/ha (Rainfed): 5.1 % yield increase over BSR 2 2929 kg/ha (Irrigated): 18.0 % yield increase over VRI 8
Shelling outturn (*per cent*)	70.0
Oil content (*per cent*)	51

As per the proceedings (No. DR/P7/Proceedings/UVTRSC 2019/ dated 30.12.2019) communicated by the Director of Research, TNAU, Coimbatore, large scale field testing will be conducted in selective districts to assess the potential of the entry VG 13163 along with other check varieties during *kharif* 2020 season.

A2. Groundnut: ART

(a) Habit Group: Spanish Bunch [Short Duration (90 days)]

Sl. No	Entries	Pedigree	Duration (Days)	Pod yield (kg/ha)	% Increase over GG7	Special attributes
1	VG 17008*	VRI 2 x IVK 2013-5	90	2500	20.4 (2075kg/ha)	Early, high yield
2	VG 17009	VRI 2 x IVK 2013-5	90	2408	16.0 (2075kg/ha)	Early, high yield
Checks : GG 7, K 6, Dharani, VRI 8, BSR 2						

*OFT / Particpatory appraisal will be conducted in 40 locations during *Rabi* / Summer 2020-21.

Locations: 56

Season	*Rabi* / Summer 2020-21
Districts	Thiruvallur, Kancheepuram, Villupuram, Vellore, Thiruvannamalai, Cuddalore, Salem, Namakkal, Erode, Coimbatore, Thiruchirappalli, Perambalur, Karur, Pudukkottai, Tanjore, Madurai, Theni, Virudhunagar, Sivagangai, Thirunelveli (40 Trials – Two trials in each district)
KVK	KVK, Sandiyur, KVK, Vridhachalam, KVK, Tinidvanam, KVK, Erode, KVK, Paparapatti, KVK, Perambalur, KVK, Vamban, KVK, Karur (16 Trials –2 trials in each KVK)

(b) Habit Group: Spanish Bunch [Normal Duration (105-110 days)]

Season: *Rabi*/summer 2020-21
Spacing: 30 x 10 cm

Sl. No	Entries/ Checks	Pedigree	Duration (Days)	Pod yield (kg/ha)	Special attributes
1	COG 0537*	CO 7 X ICGV 03042	105	2883	High yield
Checks : VRI 8, TMV 14, CO 7, BSR 2, K 6					

*After assessing the performance of the entry COG 0537 during *rabi*/summer 2019-20, the entry will be evaluated as indicated in the above table.

Locations: 56

Season	*Rabi* / Summer 2020-21
Districts	Thiruvallur, Kancheepuram, Villupuram, Vellore, Thiruvannamalai, Cuddalore, Salem, Namakkal, Erode, Coimbatore, Thiruchirappalli, Perambalur, Karur, Pudukkottai, Tanjore, Madurai, Theni, Virudhunagar, Sivagangai, Thirunelveli (40 Trials – Two trials in each district)
KVK	KVK, Sandiyur, KVK, Vridhachalam, KVK, Tinidvanam, KVK, Erode, KVK, Paparapatti, KVK, Perambalur, KVK, Vamban, KVK, Karur (16 Trials –2 trials in each KVK)

A3. Sesame

Sl. No	Entries/ Checks	Pedigree	Duration (Days)	Pod yield (kg/ha)	Yield increase over best check (TMV 7)	Special attributes
1	VS 13-006	VRI (Sv) 2 x GT 10	80-85	719	10.62 % (650 kg / ha)	Moderately resistant to root rot and phyllody diseases
Checks : TMV 7, VRI 3						

Locations: 210

Season	Rabi 2020-21 and Summer 2021
Districts	Villupuram, Vellore, Kanchipuram, Tiruvallur, Thiruvannamalai, Cuddalore, Dharmapuri, Krishnagiri, Salem, Namakkal, Coimbatore, Tirupur, Erode, Trichy, Perambalur, Ariyalur, Karur, Pudukkottai, Madurai, Theni, Dindigul, Virudhunagar, Sivagangai, Thanjavur, Tiruvarur, Nagapattinam, Thoothukudi, Kallakurichi, Tenkasi, Chengalpattu, Tirupathur, Ranipet, Mayiladuthurai and Thirunelveli (170 Trials – five trials in each district)
KVK	Vamban, Sirugamani, Kuntrakudi, Madurai, Virudhachalam, Tindivanam, Vrinjipuram, Santhiyur, Paparapatti and Tirur (40 trials - Four trials in each KVK)

*If sufficient seeds are available, simultaneous OFT may be conducted along with ART

A4. Sunflower

Sl. No	Cultures	Pedigree	Duration (days)	Seed yield (kg/ha)	Yield increase over check (COH 3)	Special features
1	CSFH 15020 ®	COSF12A x IR 6	85-90	1893	11.3 % (1701 kg/ha)	High yield, moderate resistant to powdery mildew and *Alternaria*
Checks : COH 3, Gangakaveri 2002						

Locations:

Season	Kharif 2020 and Rabi 2020-21
Districts	Villupuram, Vellore, Kanchipuram, Tiruvallur, Thiruvannamalai, Dharmapuri, Salem, Namakkal, Coimbatore, Tirupur, Erode, Trichy, Perambalur, Ariyalur, Karur, Madurai, Theni, Dindigul, Virudhunagar, Thanjavur and Thoothukudi, (130 Trials – five trials in each district)
KVK	Sirugamani, Karur, Paparapatti and Tirur (20 trials – Five trials in each KVK)

*If sufficient seeds are available, simultaneous OFT may be conducted along with ART

A5. Castor

Sl. No	Entries/ Checks	Pedigree	Duration (Days)	Seed Yield (kg/ha)	Special attributes
1	YRCH 16108	DPC 17 x YRCS 1904	180 days	1320 (15 % higher than Check YRCH 2)	High yield,Early& wilt resistant
Checks : YRCH 1 , YRCH 2 & DCH 519					

Locations: 60

Season	Kharif 2020
Districts	Dharmapuri, Salem, Namakkal, Erode (10 Trials in each district)
KVK	Namakkal, Erode Santhiyur, Paparapatti (5 trials - Four trials in each KVK)

*If sufficient seeds are available, simultaneous OFT may be conducted along with ART

A6. Groundnut: Multilocation Trial (MLT)

Habit Group: SPANISH BUNCH

Season: *Kharif* 2020 & *Rabi* / Summer 2020-21 Replication: Three
Spacing: 30 cm x 10 cm Plot size: 4.0 x 3.0 m^2

Features of the proposed culture

S. No.	Culture	Parentage	Duration (Days)	Pod yield (kg/ha)	Special features
1	VG 17037 (R)	VRI Gn 6 x IVK-2013-16	105-110	4062	High yield
2	VG 17046 (R)	CO 6 x IVK-2013-16	105-110	3975	High yield
3	TVG 17180 (R)	ICGV 07240 x R 2001-2	105-110	4412	High yield
4	VG 18089 (N)	ICGV 00348 X ISK-2013-1	105-110	3765	High yield
5	VG 19721 (N)	CO 6 X VG 13149	105-110	4097	High yield
Checks: VRI 8, BSR 2, K6 and Dharani					
Testing centres (8): Vridhachalam, Tindivanam, Coimbatore, Bhavanisagar, Vazhavachanur, Aliyarnagar, Chettinad (*Kharif*) and Paiyur (*Kharif*)					

Observations to be recorded

(1) Plant stand at maturity. (2) Pod yield (kg/plot) (replication-wise), (3) Kernel yield (kg/plot) (replication-wise), (4) Shelling per cent (5) Pod yield (kg/ha) and (6) Kernel yield (kg/ha).

Note: Screening for the pests and diseases will be carried out by RRS, Vriddhachalam, Dept. of Oilseeds, TNAU, Coimbatore and CRS, Aliyarnagar.

Name of the centre	Pests	Diseases
RRS, Vriddhachalam	√	√
Dept. of Oilseeds, TNAU, Coimbatore	-	√
CRS, Aliyarnagar	-	√

A7. Sesame: Multilocation Trial (MLT)

Season: *Rabi* 2020-21 and Summer 2020-21 Replication: Three

Spacing: 30 cm x 30 cm Plot size: 4.0 x 3.0 m^2

Features of the proposed culture

Sl. No	Cultures	Pedigree	Duration (Days)	Seed yield (kg/ha)	Seed coat colour	Proposing centre
1	VS 16 – 009 (R)	VRI Sv 2 x MT-10-8-1	1042	85-90	Brown	Vridhachalam
2	VS 17-030 (N)	TMV 3 x Nana Bhamodra 5	964	85-90	Brown	Vridhachalam
3	VS 18-005 (N)	TMV 3 x MT 10-23-3	1069	85-90	Brown	Vridhachalam
Checks: TMV 7 and VRI 3						

Testing centres (9): Vridhachalam, Tindivanam, Coimbatore, Srivilliputhur, Killikulam, Madurai, Bhavanisagar, Vazhavachanur and Kattuthottam.

Observations to be recorded

(1) Days to 50% flowering, (2) Days to maturity, (3) Plant stand at maturity, (4) Number of branches per plant, (5) Number of capsules per plant, (6) Seed yield (kg/plot) (replication-wise) and (7) Seed yield (kg/ha)

Note: Screening for the pests and diseases will be carried out by RRS, Vriddhachalam

Name of the centre	Pests	Diseases
RRS, Vriddhachalam	Shoot and capsule borer	Root rot and phyllody

A8. Sunflower : Multilocation Trial (MLT)

Season: *Kharif* 2020 & *Rabi* / Summer 2020-21 Replication: Three

Spacing: 60 x 30 cm Plot size: 4.0 x 3.0 m^2

Features of the proposed cultures

Sl. No	Cultures	Pedigree	Duration (Days)	Seed yield (kg/ha)	Special features	Proposing centre
1	CSFH 16510 (R)	COSF 6A x CSFI 13006	2121	85-90	High yield	Coimbatore
2	CSFH 17078 (R)	COSF 6A x CSFI 13078	2128	80-85	High yield	Coimbatore
3	CSFH 18284 (N)	COSF11A x CSFI99	2457	85-90	High yield	Coimbatore
Checks: COH 3, Gangakaveri 2002						

Testing centres (7): Coimbatore, Bhavanisagar, Vridhachalam, Veppanthattai, Killikulam, Tindivanam (*rabi*) and Kovilpatti (*rabi*)

Observations to be recorded

(1) Days to 50% flowering, (2) Plant stand at maturity, (3) Head Diameter (4) Seed yield (kg/plot) (replication-wise) and (5) Seed yield (kg/ha).

Note: Screening for the following pests and diseases will be carried out by Dept. of Oilseeds, Coimbatore

Name of the centre	Pests	Diseases
Dept. of Oilseeds, Coimbatore	Leaf Hopper, Head borer	Necrosis, Powdery mildew and Alternaria

A9. Castor: Multilocation Trial (MLT) Rabi 2020-21

Sl. No	Cultures	Pedigree	Duration (Days)	Seed yield (kg/ha)	Special features	Proposing centre
1	YRCH 19014	DPC 9 x JI 220	180	2425	Early, Semi dwarf and wilt resistant	Yethapur
2	YRCH 19016	DPC 9 x SKI 215	180	2340	Early, wilt resistant and Basal branching	Yethapur
Checks: YRCH 1, YRCH 2 & DCH 519						

Testing centres (5): Yethapur, Paiyur, Vridhachalam, Tindivanam, Sandhiyur

Observations to be recorded

(1) Days to 50% flowering, (2) Plant stand at maturity, (3) Seed yield (kg/plot) (replication-wise) and (5) Seed yield (kg/ha)

Note: Screening for the following pests and diseases will be carried out by TCRS, Yethapur

Name of the centre	Pests	Diseases
TCRS, Yethapur	Semilooper, Capsule Borer,Leaf hopper, White fly and Flower thrips	Botrytis Grey Mold & Wilt

Important Dates in conduction of MLT and ART

Activities	Season	Last date for receipts	Date of Despatch
Seed material of the proposed ART entries	Kharif	31.05.2020	15.06.2020
	Rabi	15.08.2020	05.09.2020
Seed material of the proposed MLT entries	Kharif	31.05.2020	05.06.2020
	Rabi	15.08.2020	05.09.2020
	Summer	30.12.2020	05.02.2021
Sowing report	Kharif	30.07.2020	-
	Rabi	30.10.2020	
	Summer	31.03.2021	
Visit of MLT/monitoring teams	Kharif	Sep. 2020	-
	Rabi	Dec. 2020	
	Summer	May. 2021	
	Rabi	Dec. 2020	
Date for receiving the trials results at Vriddhachalam for compilation	Kharif	15.12.2020	-
	Rabi	28.02.2021	
	Summer	30.06.2021	

Monitoring team to visit MLT 2020-21		
Scientist	**Crop**	**Season**
Dr. A. Mothilal Professor (PBG) and Head, RRS, VRI Dr. R. Kanchana Rani, Assistant Professor (PBG), ORS, TMV Dr. P. Indhira Gandhi, Assistant Professor (Ento.), RRS, VRI Dr. G. Senthil Raja, Assistant Professor (PP), RRS, VRI	Groundnut	Kharif 2020 and Rabi 2020-21
Dr. A. Mahalingam, Assistant Professor (PBG), RRS, VRI Dr. B. Meena, Associate Professor (PP), RRS, VRI Dr. R. Sheebha Jasmine, Assistant Professor (Ento.), RRS, VRI	Sesame	Rabi 2020-21and Summer 2021
Dr. PL.Viswanathan Professor (PBG) and Head, DOS, TNAU, CBE. Dr. R. Sasikala, Assistant Professor (PBG), Dr. L. Rajendran Assistant Professor (Plant Pathology) Dr. T. Selvakumar, Assistant Professor (Agronomy)	Sunflower	Kharif 2020 and Rabi 2020-21
Dr.S.R.Venkatachalam, Yethapur Dr.P.Arutchenthil, Yethapur Dr. M. Deivamani, Asst. Prof. (Pathology)	Castor	Kharif 2020

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1.3. Research Projects and remarks

Research Projects on Oilseeds

Crops	Centres	URP	AICRP	EFP	CP	Total	No. of Scientists
GROUNDNUT	Vridhachalam	3	1	-	1	5	1
	Tindivanam	2	1	-	-	3	1
	Coimbatore	1	-	-	-	1	1
	Kudimiyanmalai	1	-	-	-	1	1
	Bhavanisagar	1	-	-	-	1	1
	Pattukottai	1	-	-	-	1	1
	Thiruvannamalai	-	-	1	-	1	1
	Chettinadu	-	-	-	1	1	1
	Sub Total	9	2	1	2	14	8
SESAME	Vridhachalam	2	1	-	-	3	1
	Madurai	1	-	1	-	2	1
	Bhavanisagar	1	-	-	-	1	1
	Kumulur	1	-	-	-	1	1
	Coimbatore	-	-	-	1	1	1
	CPMB&B	1	-	-	-	1	1
	Sub Total	6	1	1	1	9	5
SUNFLOWER	Coimbatore	2	1	1	-	4	1
	Sub Total	2	1	1	-	4	1
CASTOR	Yethapur	1	1	-	1	3	2
	Sub Total	1	1	-	1	3	2
Grand Total		**18**	**5**	**3**	**4**	**30**	**17**

Ongoing URPs / AICRPs / Externally Funded Projects in Crop Improvement

Sl. No	Project No. and Title	Project leaders	Duration	Remarks
1. University Research Projects (URPs)				
Groundnut				
1	**CPBG/VRI/PBG/GNT/2015/005** Collection, conservation and evaluation of genetic resources of groundnut (*Arachis hypogaea* L.)	**Dr. A. Mothilal,** Professor (PB&G) and Head	December 2015 to November 2020	Effective utilization of earmarked genotypes should be done
2	**CPBG/VRI/PBG/GNT/2016/001** Breeder seed production of high yielding groundnut varieties released from Regional Research Station, Vridhachalam	**Dr. A. Mothilal,** Professor (PB&G) and Head	August 2016 to July 2021	Utmost care should be taken to produce targeted quantity of breeder seeds on time. The project may be continued. The completion report should be submitted in time
3	**CPBG/VRI/PBG/GNT/2012/003** Breeding of improved Spanish Bunch / Virginia Bunch cultivar with inbuilt resistance / tolerance to foliar fungal disease and drought	**Dr. A. Mothilal,** Professor (PB&G) and Head	January 2012 to December 2016	The number of cross combinations should be restricted to eight numbers only but aiming for larger population of selective crosses. GG cultures may be used in crossing programme. Drought studies may be withheld concentrating only on yield traits. Care should be taken to select segregants/advanced lines only without single pods, in situ germination; The project may be continued

4	**CPBG/TVM/PBG/OIL/2018/001** Maintenance Breeding and Breeder Seed Production of groundnut Sesame, Castor and Pulses varieties released from TNAU	**Dr. R. Kanchanarani**, Assistant Professor (PB&G)	September 2018 to August 2021	Utmost care should be taken to produce the targeted good quality NS/BS on time. There should not be any compromise. The project may be continued.
5	**CPBG/TVM/PBG/GNT/2018/001:** Evolution of bunch groundnut varieties tolerant to early stage drought situations	**Dr. R. Kanchanarani,** Assistant Professor (PB&G)	June 2018-May 2023	New generation material should be developed without making any more delay with proven parents. TMV 7 and TMV13 should be added as check varieties in all yield trials. The project may be continued
6	**CPBG/CBE/PBG/GNT/2018/001** Development of high yielding foliar disease resistant groundnut varieties better then CO7	**Dr.PL.Viswanathan,** Professor (PB&G) and Head	October 2015 to September 2020	The project may be continued
7	**CPBG/KDM/PBG/GNT/2017/001** Breeder seed production in groundnut and pulses	**Dr. P.Shanthi** Assistant Professor (PB&G)	November 2017 to September 2020	Care should be taken to produce high quality BS on time and to achieve the target. The project may be continued
8	**CPBG/BSR/PBG/GNT/2017/001** Breeder seed production in ruling varieties of groundnut in Tamil Nadu.	**Dr.B.MeenaKumari** Asst. Professor (PB&G)	July 2017 – June 2020	The project may be continued

9	**CPBG/PKT/PBG/BGR/2016/001:** Breeder Seed Production in Pulses and Groundnut	**Dr. A. Bharathi** Asst. Professor (PB&G)	April 2016 to March 2021	More care and attention to be provided for achieving the target without any shortfall and seed quality deterioration

Sesame				
10	**CPBG/VRI/PBG/SES/2019/001** Evolution of high yielding sesame varieties with resistance to *Macrophomina* root rot	**Dr. A. Mahalingam** Assistant Professor (PB&G) **Dr.B.Meena** Associate Professor (Plant Pathology)	September 2018 to August 2023	The best donor for root rot resistance should be identified from the available genetic resources and used in crossing programme. Efforts should be taken up to advance the monostem entry for up scaling. The project may be continued.
11	**CPBG/VRI/PBG/SES/2016/001** Production of genetically pure nucleus and breeder seed of sesame varieties released from Vridhachalam	**Dr. A. Mahalingam** Assistant Professor (PB&G)	June 2016 to May 2021	The project may be continued
12	**CPBG/MDU/PBG/SES/2015/001–** Development of short duration high yielding white seeded sesame (*Sesamum indicum* L.) variety suitable for Southern districts of Tamil Nadu	**Dr. C. Parameswari,** Asst. Professor (PB&G)	October 2015 to September 2018	The project may be continued

13	**CPBG/BSR/PBG/SES/2017/001** Development of white seeded sesame genotypes suitable for western zone of Tamil Nadu.	**Dr.B.MeenaKumari** Asst. Professor (PB&G)	July 2017 to June 2020	The project may be continued
14	**CPBG/KUM/PBG/SES/2019/001** Development of Sesame (*Sesamum indicum* (L.) varieties suitable for summer irrigated conditions	**Dr. M. Dhandapani** Assistant Professor (PBG) Co-Project Leader **Dr. V. Alex Albert** Assistant Professor (SST)	February 2019 to June 2022	The project may be continued
15	**CPMB/CBE/BIC/SES/2018/ CP002** Lignan diversity analysis in sesame genotypes for identification of elite sesame lines	**Dr. D. Uma,** Professor and Head, Department of Biochemistry	October 2018 to Sept 2020	The project may be continued.
Sunflower				
16	**CPBG/CBE/PBG/SNF/2015/004** Evolution of high yielding sunflower hybrids	**Dr. R. Sasikala** Assistant Professor (PB&G)	June 2015 to May 2020	The project may be continued
17	**CPBG/CBE/PBG/SNF/2018/001** Collection, Maintenance and Evaluation of Germplasm in Sunflower	**Dr. R. Sasikala** Assistant Professor (PB&G)	January 2018 to December 2020	The project may be continued

Castor				
18	**CPBG/YTP/PBG/CAS/2015/001** Collection, Conservation, Evaluation, Characterization and Utilization of Castor Germplasm	**Dr. P. Arutchenthil** Associate Professor (PB&G)	July 2015 to June 2020	The seeds of the identified entries may be deposited in Ramiah gene bank with the details of the specific characteristics. Determinate types and wilt resistant types if any should be isolated and further improvement should be made. Progress should be made in the year 2020. The project may be continued.
2. AICRPs				
Groundnut				
19	**AICRP/PBG/VRI/GNT/017** All India Evaluation of advanced breeding lines belonging to Spanish / Virginia bunch group through co-ordinated experiments.	**Dr. A. Mothilal** Professor (PB&G) RRS, Vridhachalam	Continuous	The project may be continued
20	**AICRP/PBG/TVM/GNT/019 AICRP** – Oilseeds Groundnut ORS, Tindivanam	**Dr. R. Kanchanarani,** Assistant Professor (PB&G)	Continuous	The project may be continued
SESAME				
21	**AICRP/PBG/VRI/SES/021** All India Coordinated Research Project on Sesame	**Dr. A. Mahalingam** Assistant Professor (PB&G) Vridhachalam	Continuous	The project may be continued
SUNFLOWER				
22	**AICRP/PBG/CBE/SUN/020** AICRP on Oilseeds (Sunflower)	**Dr.R.Sasikala,** Asst. Professor (PBG	Continuous	The project may be continued

CASTOR				
23	**AICRP/PBG/YPR/CAS/022** All India Coordinated Research Project on castor – Breeding	**Dr.S.R.Venkatachalam** Professor (PB&G) TCRS,Yethapur **Dr.P.Arutchenthil** Assistant professor (PB&G) TCRS,Yethapur.	Continuous	The project may be continued
3. External Funded Schemes				
24	**ICRISAT/ACRI/VVNR/PBG/2019/R003** High oleic groundnut trail evaluation of ICRISAT under OFID activities	Dr. M. Vaithiyalingan Associate Professor (PBG) Dr. M. Pandiyan, DEAN, AC&RI, VVNR	2019 - 2020	The project may be continued
25	**BRNS/CPBG/MDU/SES/2018/R003-** Development of Early Maturing Determinate White Seeded Sesame (*Sesamum indicum* L.) through gamma irradiation	Dr. C. Parameswari Assistant Professor (PB&G) **CO – PI** Dr. C. Vanniarajan Professor (PB&G) and Head	2018 - 2021	The project may be continued
26	**DBT/CPBG/CBE/OIL/2017/R008** Development of high oleic hybrid through marker assisted backcross approach in sunflower [*Helianthus annuus* (L.)]	Dr. Ameena Premnath Early Career Scientist (DBT Bio-CARe) **CO – PI** Dr. N. Manivannan (Mentor) Professor (PB&G) & Head	July 2017 to July 2020	The project may be continued

4. Core Projects				
27	**CPBG/CBE/PBG/SES/2018/CP122** Development of high yielding early maturing black seeded sesame genotype better than CO1 variety	**Dr. S. Manonmani** Professor (PB&G)	April 2018- Sep 2020	The project may be continued and to be completed on 30.09.2020
28	**CPBG/YTP/PBG/CAS/2018/ CP052** Development of superior castor hybrids with improved plant type and wilt resistance.	**Dr.S.R.Venkatachalam** Professor(PB&G) & Head	April 2018 to March 2019	The project may be continued and to be completed on 30.09.2020
29	**CPBG/VRI/PBG/GNT/2018/CP111** Development of early maturing Spanish bunch groundnut variety suitable for rainfed regions of Tamil Nadu	**Dr. A. Mothilal,** Professor(PBG) and Head	2018-2020	The project may be continued and to be completed on 30.09.2020
30	**CPBG/CTN/PBG/GNT/2018/ CP103** Development of leaf spot and rust resistant variety in groundnut	**Dr. R. Chandirakala,** Asst. Prof. (PBG) **Dr. M. Paramasivan,** Asst. Prof. (Patho.)	2018-2020	The project may be continued and to be completed on 30.09.2020

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2. CROP MANAGEMENT

2.1. Action Plan Projects
New Action Plans for 2020-2021
Action Plan 1. Drought management strategies for improving yield in rainfed Groundnut

Objectives:

- To develop drought management strategy for yield improvement in rainfed groundnut
- To study the effect of drought management strategy on economics of rainfed groundnut

Treatment details

Main plot : Sowing window (North Eastern Zone)

T_1 - June 20th to 30th
T_2 - July 1st to 10th
T_3 - July 10th to 20th

Sub plot : Foliar Spray

S_1 - Control
S_2 - 1 % PPFM at 20 & 45 DAS
S_3 - 0.5 % KCl at 20 & 45 DAS
S_4 - 1 % PPFM at 20 DAS & 0.5 % KCl at 45 DAS
S_5 - 0.5 % KCl at 20 DAS & 1 % PPFM at 45 DAS

Design : Split plot
Replication : Three

Observations to be recorded

- Initial and final plant stand
- Yield attributes and Pod Yield (kg/ha)
- Relative Water Content
- Growing degree days
- Economics

Centers and Scientists in-Charge:

ORS, Tindivanam (Coordinating centre)
Dr. P. Sridhar, Professor (Agronomy) and Head
Dr.R.Brindavathy, Assoc. Prof. (Agricultural Microbiology)

RRS, Vridhachalam
Dr. T. Parthipan, Asst. Prof. (Agronomy)

DARS, Chettinad
Dr. T. Myrtle Grace, Professor and Head

Action Plan 2. Developing technology package for castor-cucurbits relay cropping for resource conservation and profit maximization

Objectives:

- To optimize time and method of sowing on growth, yield of cucurbits in castor based relay cropping system.
- To find out suitable cucurbit crop for higher resource use efficiency, system productivity and monitory returns.

Treatments Details

T_1 - Castor - Bitter gourd
T_2 - Castor - Ridge gourd
T_3 - Castor- Snake gourd
T_4 - Castor- Bottle gourd
T_5 - Castor- Cucumber
T_6 - Castor- Coccinia

Sowing window
Castor : August 1st fortnight
Cucurbits : February 1st fortnight

Design : RBD Replications : 4
Spacing : 2x2 m
Ecosystem : Irrigated situation
Variety
Castor : Perennial Castor YTP 1
Cucurbits : Bitter gourd - CO 1
Ridge gourd - PKM 1
Snake gourd - PLR 2
Bottle gourd - PLR 2
Cucumber - Mangalam local
Coccinia - CO 1

Observations to be recorded

- Yield attributes and Yield (kg/ha) of castor and cucurbits
- Castor Equivalent Yield
- System Productivity and profitability
- Economics

Centers and Scientists in-Charge:

TCRS, Yethapur (Coordinating Centre)
Dr.P.Kathirvelan, Asst. Prof. (Agronomy)
Dr.P.S.Kavitha, Asst.Prof.(Horticulture)

RRS, Vridhachalam
Dr.C.Harisudan, Asst. Prof. (Agronomy)
Dr.S.Velmurugan, Asst.Prof.(Horticulture)

Action Plan 3. Refining sulphur recommendation for yield maximization in sesame

Objectives

- To study the response of sesame to graded levels of sulphur
- To assess the residual effect of sulphur on greengram/ blackgram

Treatment Details

T_1 - Control
T_2 - RDF alone
T_3- RDF+ S @40 kg ha^{-1}
T_4 - RDF+ S @ 45 kg ha^{-1}
T_5 - RDF+ S @50 kg ha^{-1}
T_6 - RDF+ S @55 kg ha^{-1}
*RDF – Based on STCR

Cropping sequence	:	Sesame – Greengram/Blackgram
Design	:	RBD
Replication	:	Four

Observations to be recorded

Sesame

- Seed yield (kgha^{-1})
- Sulphur content and uptake
- Soil available sulphur
- Oil Content
- Oil quality

Blackgram/Greengram

- Seed yield (kg ha^{-1}
- Sulphur content and uptake
- Protein content (blackgram/greengram)

Co-ordinating centre & Scientist In-charge:	Dept.of SS&AC, TNAU, CBE	**Dr. M. R. Backiyavathy** Professor (SS&AC)
Centres & Scientists In-charge:	IOA, Kumulur	**Dr. M. Baskar** Assoc. Prof (SS&AC)
	SWMRI, Kattuthottam	**Dr. M. Babu** Professor (SS&AC)
	ORS, Tindivanam	**Dr. P. G.Lavanya** Professor (SS&AC)

2.2. Technologies for Adoption/OFT/Information

1. Technology for adoption

1. Crop establishment and suitable intercrop for semi-spreading groundnut under rainfed condition

Groundnut + cowpea @ 4:1 ratio under seed drill sowing with raised bed (120 cm) recorded higher GEY (1601 kg/ha), RUE (1.89 kg ha-mm^{-1}) and BCR (2.05).

2. On Farm Trial (OFT) for 2020-2021

2.1. Identification of remunerative groundnut based cropping system under rainfed situation

Treatments

T_1-Groundnut + Maize (4:1)
T_2- Groundnut + SD Redgram (4:1)

Season : Kharif 2020

Observations to be recorded

- Groundnut Equivalent yield
- Economics

Coordinating Centre :

RRS, Vridhachalam
Dr.T.Parthipan, Asst. Prof.(Agronomy)

Centres :

ORS, Tindivanam
Dr.K.Sathiya, Asst. Prof. (Agronomy)
DARS, Chettinad
Dr.T.Myrtle Grace, Prof. (Agronomy) & Head

2.2. Effect of sulphur oxidizing bacteria on yield of sesame

Treatments

T_1 -100 % RDN + Gypsum
T_2- 75 % RDN + Seed treatment with *Azospirillum* + Gypsum
T_3-75 % RDN + Seed treatment with *Azospirillum* & SOB +soil application of SOB on 45 DAS

Season : Rabi/Summer 2020-21

Observations to be recorded

- Growth parameters
- Yield attributes and Seed yield (kg/ha)
- Microbial population
- Nutrient Status
- Economics

Coordinating Centre:

ORS, Tindivanam
Dr.R. Brindavathy
Assoc. Prof. (Agricultural Microbiology)

Centers and Scientists in-Charge:

RRS, Vridhachalam
Dr. C.Harisudan, Asst. Prof.(Agronomy)

Dept. of Oilseeds
Dr.T.Selvakumar, Asst. Prof. (Agronomy)
Dr. R. Anandham, Asst. Prof. (Agricultural Microbiology)

2.3. Research Projects and Remarks

Crop wise List of Projects

S.No	Projects	Groundnut	Sesame	Sunflower	Castor	Total
1.	Action Plan Projects	4	2	1	1	8
2.	University Research Projects/ Core project	9	3	-	-	12
3.	AICRP	12	6	3	5	26
4.	Externally funded	2	1	1	-	4
	Total	**27**	**12**	**5**	**6**	**50**

Discipline wise List of Projects

S.No	Projects	Groundnut	Sesame	Sunflower	Castor	Total
1.	Agronomy	14	9	4	6	33
2.	Agricultural Meteorology	1	-	-	-	1
3.	Soil Science &Agrl. Chemistry	5	-	-	-	5
4.	Agrl. Microbiology	1	1	-	-	2
5.	Crop Physiology	-	2	-	-	2
6.	Seed Science & Technology	6	-	1	-	7
	Total	**27**	**12**	**5**	**6**	**50**

Remarks on the Ongoing Projects Reviewed

CROP MANAGEMENT

Sl. No.	Project No. & Title	Coordinating scientist	Duration	Remarks
Action Plans				
1.	Effect of green manure incorporation on yield of a subsequent groundnut crop	Dr. K. Sathiya Asst. Prof. (Agronomy)	July 2019 to June 2022	To be continued
2.	Agronomic practices for micro climate modification	Dr.SP.Ramanathan, Prof.(Agron) & Head	July 2019 to June 2021	To be continued

Sl. No.	Project No. & Title	Coordinating scientist	Duration	Remarks
3.	Modifying root architecture for yield enhancement in rainfed sesame	Dr.S.Srinivasan, Asst. Prof. (CRP)	July 2019 to June 2022	To be continued
4.	Optimizing nipping practices for newly released perennial castor variety YTP 1	Dr.P.Kathirvelan, Asst. Prof. (Agronomy)	July 2019 to June 2022	The project may be closed and the results may be given for information
5.	Development of e-nose sensor for quick detection of seed quality	Dr.S. Sundareswaran Director, Seed Centre	July 2019 to June 2022	To be continued
6.	Optimizing Plant geometry and nutrient levels for pre releasespanish bunch groundnut cultures VG 13163	Dr.C.Harisudan, Asst. Prof. (Agronomy)	July 2019 to June 2021	To be closed
7.	Optimizing spacing and nutrient levels for pre-release Sunflower hybrid	Dr. T. Selvakumar Asst. Prof. (Agronomy)	July 2019 to June 2020	To be closed
8.	Optimizing plant population for higher productivity of shy branching sesame	Dr.T.Selvakumar, Asst. Prof. (Agronomy)	July 2019 to June 2021	May be continued

GROUNDNUT				
University Research Projects				
Soil Science and Agricultural Chemistry				
9.	**NRM/TVM/SAC/GNT/2015/001.** Permanent Manurial Experiment (PME) on Rainfed Groundnut and Cold weather Gingelly	Dr. P.G.Lavanya Prof.(SS&AC)	July, 2015 - June 2020	• The project is to be continued. • Interimcompletion report for the above said period is to be submitted and new project number may be obtained. • The results of the PermenaantManurial Experiment are to be complied since the date of inception and the report to be submitted to DNRM and Director of Research. • Being an experiment under

				rainfed condition the results are to be correlated with weather data.
10.	NRM/CBE/SAC/GNT/2019/001 Studies on the direct and residual effect of sulphur levels and sulphur oxidizing bacteria on yield and biochemical composition of groundnut-onion and groundnut-blackgram cropping sequence through radiotracer technique.	Dr.G.Sridevi Asst. Prof. (SS & AC)	May 2019-April 2022	The project has to be initiated at the earliest upon receipt of sulphur - 35.
Seed Science and Technology				
11.	**SEED/TVM/SST/GNT/2018/001** Evaluation of single pod sowing in groundnut	**Dr.V.Vijaya Geetha,** Asst. Prof.(SST)	January 2018 to December 2020	The project may be closed. Completion report to be submitted
12.	**SEC/BSR/SST/GNT/2019/001** Influence of mechanical harvester and strippers on seed quality and storability of groundnut seed	Dr.R.Jegathambal Professor (SST)	December 2019 to November 2021	The project may be continued.

CORE PROJECTS				
Soil Science and Agricultural Chemistry				
13.	NRM/CBE/SAC/SUG/2018/CPO14 Developing multi-micronutrient foliar formulation for alleviating the micronutrient deficiencies in sugarcane and groundnut	**Dr.D.Jegadeeswari,** Assoc. Prof. (SS&AC)	June 2018 – July 2020	Pending soil and plant analysis to be completed and completion report may be submitted.
Agricultural Microbiology				
14.	NRM/CBE/AGM/STR 2018/CP133 Development of salt tolerant rhizobia for plant growth promotion and yield of groundnut in saline soils	**Dr. R. Anandham,** Asst. Prof. (Agrl. Microbiology)	April 2018-March 2019	The field experiment may be conducted in saline soils and to be completed on 30.09.2020
SEED SCIENCE AND TECHNOLOGY				
15.	SEC/CBE/SST/GNT/2018/10 Understanding the causes of seed dormancy, poor multiplication ratio, seed deterioration and management strategies for improving productivity in groundnut	**Dr. R.Jerlin** Professor (SS&T) **Dr. J. Renugadevi** Professor (SS&T)	August 2018 to March 2020	The project may be closed. Completion report to be submitted

16..	SEC/CBE/SST/GNT/2018/CP141 Studies on fatty acid profile and their influence on seed storability of groundnut varieties	**Dr.P.R.Renganayaki** Professor and Head (SST)	February 2019 to September 2020	The project may be continued. and to be completed on 30.09.2020
17.	SEC/CBE/SST/MAZ/2018/CP075 Assessing the seed maturity and vigour of groundnut and maize crops using Chlorophyll fluorescence technique	**Dr.D.Thirusendura Selvi** Asst. Prof. (SST)	November 2018 to March 2020	The project may be closed. Completion report to be submitted.

EXTERNALLY FUNDED PROJECTS				
SOIL SCIENCE AND AGRICULTURAL CHEMISTRY				
18.	DST/NRM/CBE/SSAC/2018/R007 Screening Iron Efficient Groundnut Genotypes and Assessing Contribution of Microbial Siderophores in a Calcareous Soil using Iron -59 Radiotracer	**Dr. S. Meena** Professor (SS&AC)	April, 2018 – March, 2021	Radiotracer work planned for the third year to be initiated and completed and the project work to be continued.
19.	DST / NRM / CBE / SSAC / 2018 / R008Understanding and exploiting genotypic variation in groundnut for selecting zinc efficient cultivars for soils of low zinc status	**Dr.K.Radhika** DST - Women Scientist - A	April 2018 – March 2021	Radiotracer experiment with zinc - 65 is to be carried out at the earliest on receipt of zinc]-65 from BRIT, Mumbai and the project work to be continued.

SESAME				
University Research Projects				
Agricultural Microbiology				
20	**NRM/CBE/AGM/SES/2016/001**. Enhancing the productivity and quality ofSesame using microbial inoculants.	**Dr. R. Brindavathy ,** Assoc. Prof. (Ag. Microbiology)	September 2016 – August 2020	Findings may be proposed for OFT. Completion report may be submitted.
CORE PROJECT				
Agronomy				
21.	**DCM/VRI/AGR/SES/2018/CP045** Exploitation of novel tools and technologies for yield maximization in sesame	**Dr. C. Harisudan** Asst. Prof. (Agronomy)	June 2018 to May 2020	To be closed

Crop Physiology				
22.	DCM/CBE/CRP/CSF/2018/CP009 Development of Crop specific foliar formulations for yield enhancement in selected crops (rice, redgram, sesame and finger millet) under normal and water deficit environments	**Dr. P.Jeyakumar** Professor and Head (Crop Physiology)	June 2018 to September 2020	To be continued and to be completed on 30.09.2020
EXTERNALLY FUNDED PROJECT				
Agronomy				
23.	Developing best management practices for sesame cultivation (after rice) under rice-sesame cropping system	**Dr. C.Harisudan** Asst. Prof. (Agronomy)	April 2019-March 2020	New

SUNFLOWER				
Seed Science and Technology				
24.	**GOI-DUS scheme** PPV/SC/CBE/SST/2003/R001: DUS test centre for Rice and Sunflower under PPV & FR Authority at the Department of Seed Science and Technology, TNAU, Coimbatore	**Dr. P.R. Renganayak**i Professor and Head	2004 to 2019	The project may be continued.
AICRP Projects				
GROUNDNUT				
25.	**AICRP/PBG/VRI/GNT/017** Integrated weed management in *Kharif* Groundnut	**Dr. T. Parthipan** Asst. Prof. (Agronomy)	2018-19 to 2020-21	The project to be continued.
26.	**AICRP/PBG/VRI/GNT/017** Improving phosphorus use efficiency in groundnut with microbial cultures.	**Dr. T. Parthipan** Asst. Prof. (Agronomy)	2018-19 to 2020-21	The project to be continued.
27.	**AICRP/PBG/VRI/GNT/017** Identification of remunerative groundnut based cropping systems under rainfed situation in India	**Dr. T. Parthipan** AP (Agronomy)	2018-19 to 2020-21	The project to be continued.

28.	**AICRP/PBG/VRI/GNT/017** Effect of foliar application of water soluble fertilizer on growth, yield and nutrient uptake of summer groundnut	Dr. T. Parthipan Asst. Prof. (Agronomy)	2018-19 to 2020-21	The project to be continued.
29.	**AICRP/PBG/VRI/GNT/017** Efficacy of herbicides on weed control in groundnut under rice – groundnut system	Dr. T. Parthipan Asst. Prof. (Agronomy)	2018-19 to 2020-21	The project to be continued.
30.	**AICRP/PBG/VRI/GNT/017** Agronomic management of rabi/ summer groundnut under rice groundnut system	Dr. T. Parthipan Assistant Professor (Agronomy)	2018-19 to 2020-21	The project to be continued.
31.	**AICRP/PBG/TVM/GNT/019** Improving phosphorus use efficiency in *Kharif* groundnut with microbial cultures.	Dr. K. Sathiya Asst. Prof. (Agronomy)	2018-20	The project to be continued.
32.	**AICRP/PBG/TVM/GNT/019** Effect of foliar application of water soluble fertilizer on growth, yield and nutrient uptake of summer groundnut	Dr. K. Sathiya Asst. Prof. (Agronomy)	2019-21	The project to be continued.
33.	**AICRP/PBG/TVM/GNT/019** Efficacy of herbicides on weed control in groundnut under rice – groundnut system	Dr. K. Sathiya Asst. Prof. (Agronomy)	2017-19	The project to be continued.
34.	**AICRP/PBG/TVM/GNT/019** Agronomic management of rabi summer groundnut under rice – groundnut system	Dr. K. Sathiya Asst. Prof. (Agronomy)	2017-19	The project to be continued.
35.	**AICRP/PBG/TVM/GNT/019** Improving phosphorus use efficiency in rabi-summer groundnut with microbial cultures.	Dr. K. Sathiya Asst. Prof. (Agronomy)	2019-21	The project to be continued.
36.	**AICRP/PBG/TVM/GNT/019** Integrated weed management in Kharif Groundnut	Dr. K. Sathiya Asst. Prof. (Agronomy)	2018-20	The project to be continued.

SESAME				
37.	**AICRP/PBG/VRI/SES/021** Optimization of nutrient requirement for AVT genotypes	**Dr. C. Harisudan** Asst. Prof (Agron)	2019-20	The project to be continued.
38.	**AICRP/PBG/VRI/SES/021** Influence of terminal nipping and growth regulator on yield maximization of sesame	**Dr. C. Harisudan** Asst. Prof (Agron)	2016 to 2020	To be closed
39.	**New:** Effect of seed pelleting and crop establishment method on growth and yield of sesame	**Dr. C. Harisudan** Asst. Prof (Agron)	2019-2022	The project to be continued.
40.	**AICRP/PBG/VRI/SES/021** Effect of mulch and herbicides on weed dynamics of sesame	**Dr. C. Harisudan** Asst. Prof (Agron)	2019-2022	The project to be continued.
41.	**AICRP/PBG/VRI/SES/021** Efficacy of different doses of pendimethalin on promising sesame genotypes	**Dr. C. Harisudan** Asst. Prof (Agron)	2019-2022	The project to be continued.
42.	**AICRP/PBG/VRI/SES/021** Evaluation of pre and post emergence herbicides for weed management in sesame	**Dr. C. Harisudan** Asst. Prof (Agron)	2018-2021	The project to be continued.
SUNFLOWER				
43.	AICRP /PBG /CBE / SUN / 020 Response of sunflower to varying planting geometry and fertilizer levels under different land configurations under rainfed conditions	**Dr.T.Selvakumar** Asst. Prof. (Agron)	2016 -2020	To be closed
44.	AICRP /PBG /CBE / SUN / 020 Introduction of sunflower in emerging cropping system	**Dr.T.Selvakumar** Asst. Prof (Agron)	2019 -2020	OFT under AICRP
45.	AICRP /PBG /CBE / SUN / 020 Weed management in sunflower under modified spacing	**Dr.T.Selvakumar** Asst. Prof (Agron)	2019-2020	To be closed
CASTOR				
46.	AICRP/PBG/YPR/CAS/022 Effect of hydrogel on soil moisture and productivity of rainfed castor.	**Dr. P. Kathirvelan** Asst. Prof (Agron)	2019-2020	The project to be continued.

47.	AICRP/PBG/YTR/CAS/022 Yield maximisation of castor through Best Management Practices	**Dr. P. Kathirvelan** Asst. Prof (Agron)	2019-2020	To be closed. Results may be given for information
48.	AICRP/PBG/YTR/CAS/022 Influence of conservation tillage on carbon sequestration in castor based intercropping systems	**Dr. P. Kathirvelan** Asst. Prof (Agron)	2019-2020	The project to be continued.
49.	AICRP/PBG/YTR/CAS/022 Studies on High Density Planting in *Rabi* Castor	**Dr. P. Kathirvelan** Asst. Prof (Agron)	2019-2020	The project to be continued.
50.	AICRP/PBG/YTR/CAS/022 Frontline Demonstrations	**Dr. P. Kathirvelan** Asst. Prof (Agron)	2019-2020	The project to be continued.

STUDENT THESIS				
51.	Evaluation of agro techniques for enhancing the productivity of transplanted sesame	Student Aasif .M, ID No: 2018810201, Chairman Dr. V.K.Paulpandi Dean	2019-2021	-
52.	Evaluation of biomulches for weed management in irrigated Sunflower (*Helianthus annuus*L.)	Student B.S. Vidyashree, I.D.No. 2017600215 Chairman Dr.P.MuraliArthanari, Assoc. Prof. (Agronomy),	2019-2020	-
53.	Evaluation of Herbicide Based Integrated Weed Management Options for Irrigated Sesame (*Sesamum indicum*L.)	Student K. Sangeetha 2017600211 Chairman Dr.T. Selvakumar, Asst. Prof. (Agronomy)	2019-2020	-
54.	Optimization and split application of fertilizer nutrient for yield maximization in sesame	Student Gobika S, Chairman Dr. E.Subramanian, Asst.Prof. (Agronomy)	2019-2020	-
55.	Studies on single pod sowing and post harvest management techniques in groundnut (*Arachis hypogaea*L.)	A.Usha 2017601812 Chairman Dr.R.Jerlin Professor (SST)	2019-2020	-

56.	Biochemical basis of seed deterioration in long and short lived oilseeds	M.Vinothkumar 2017601814 Dr.T.Eevera Asst. Prof. (SST)	2019-2020	-

3. CROP PROTECTION

3.1. Action Plan Projects

ACTION PLAN (2020 -2021)

Thrust Areas for Research

- Monitoring of pests and diseases
- Identification of resistant sources and study of mechanism of resistance
- Management of pests and diseases (Bio intensive / Use of newer molecules / IPM)

Action Plan 1. Monitoring pests and diseases of groundnut, sesame, castor and sunflower			
Theme leaders	Dr. K. Karunanithi, Professor (Plant Pathology) and Dr. P. Indiragandhi, Asst. Professor (Agrl. Entomology), RRS, Vridhachalam		
Activity	**Name of the Scientist**	Observations to be made	**Deliverables**
Monitoring the incidence of important pests and diseases through fixed and roving survey.	RRS, Vriddhachalam Dr. P. Indiragandhi (Groundnut) Dr. R.Sheeba Jasmine (Sesame) Dr. B.Meena (Sesame) Dr. G. Senthilraja (Groundnut) & Dr. S. Kokilavani, ACRC, CBE	Incidence of pest and diseases are to be monitored throughout the crop period during *kharif*, *rabi* Pest and disease incidence is to be correlated with weather parameters.	Forecasting seasonal occurrence of major insect pests/diseases Monitoring of invasive pests if, any?
	CRS, Aliyarnagar Dr. M. Alagar (Groundnut) Dr. C. Ushamalini (Groundnut) ORS, Tindivanam Dr. M. Rajakumar (Groundnut) Dr. M. Paramasivam (Groundnut)		

	TCRS, Yethapur Dr. B. Geetha (Castor) Dr. M. Deivamani (Castor) Dept. of Oilseeds, CBE Dr. L.Rajendran (Sunflower) TNAU, CBE Dr. E. Sumathi, & Dr. S. Kokilavani, ACRC, CBE		

Action Plan 2. Identification of resistant sources and mechanisms of resistance for insect pests and diseases				
Theme leader	**Dr. B. Meena,** Associate Professor (Plant Pathology), RRS, Vriddhachalam **Dr. P. Indiragandhi,** Asst Professor (Agrl Entomology)			
Activity	**Name of the scientist**		**Proposed Activities for 2020-2021**	**Deliverables**
	Insect pests	**Diseases**		
Identification of resistant sources for defoliators, sucking pests and diseases	RRS, Vridhachalam Dr.P.Indiragandhi (Groundnut) Dr.R.Sheeba Jasmine (Sesame) CRS, Aliyarnagar Dr.M.Alagar (Groundnut) TCRS, Yethapur Dr.B.Geetha (Castor) TNAU, CBE Dr. E. Sumathi, (Sunflower)	RRS, Vriddhachalam Dr. G. Senthilraja (Groundnut) Dr. B. Meena (Sesame) CRS, Aliyarnagar Dr. C.Ushamalini (Groundnut) ORS, Tindivanam Dr.S.Thangeswari (Groundnut and sesame) TCRS, Yethapur Dr. M.Deivamani (Castor) Dept. of Oilseeds, Coimbatore Dr. L.Rajendran (Sunflower)	Cultures in pipeline at research stations will be screened. Biochemical and molecular mechanisms of resistance will be studied **Observations** Physical: Trichome length & density, leaf size & thickness, leaf colour Biochemical: phenols, protein, tannin, carbohydrate and reducing sugars, Confirmation of resistance in most promising entries through artificial screening	Mechanism of resistance explored in pre-release cultures anchor the release of new variety

Action Plan 3. Species complex and damage potential of thrips in groundnut			
Theme leader	**Dr. M. Murugan,** Prof. (Entomology), Dept. of Agrl. Entomology, TNAU, Coimbatore		
Activity	**Name of the scientist**	**Observations to be recorded**	**Deliverables**
Documentation of thrips species in groundnut	AC&RI, Vazhavachanur Y. Johnson Edward Thangaraj, AC&RI, Kudumiyanmalai Dr. R. Nalini TNAU, Coimbatore Dr. M. Murugan Dr. N. Chitra RRS, Vriddhachalam Dr. P. Indiragandhi (Groundnut) SRS, Cuddalore Dr. S. Pasupathy AC&RI, Madurai Dr. K. Premalatha CSRC, Ramanathapuram Dr. W. Baby Rani	Population count and per cent incidence of thrips in respective regions Thrips transmitted diseases if any Morphological and molecular characterization of thrips species	Catalogue of thrips species diversity in groundnut will be available

Action plan 4. Assessment of yield loss in sesame due to pod bug			
Theme leader	**Dr.A.Kalyanasundaram, Assoc. Prof (Entomology), AC&RI, Eachankottai**		
Activity	**Name of the scientist**	**2020-2021**	**Deliverables**
Assessment of yield loss in sesame due to pod bug	RRS, Vriddhachalam Dr.R.Sheeba Jasmine, AP (Entomology) AC & RI, Eachankottai Dr.A.Kalyanasundaram, Assoc. Prof (Ento.) AC&RI, Vazhavachanur Dr.Govindan, AP(Entomology)	Varieties VRI 2 ,VRI 3 and TMV 7 Season: *kharif* and *rabi*/summer Design : FRBD Treatments: 5 levels of damage (0, 5, 10, 20 & 30%) Varieties VRI 2 ,VRI 3, TMV 4 and TMV 7 Replication : 3 Plot size : 4 x 5 m Spacing : 30 x 30 cm Spraying of azadirachtin 10000 ppm @ 1.5ml/lit thrice during 45, 60 and 75 days after sowing for 0 damage level. Need based application of azadirachtin 10000 ppm @ 1.5ml/lit @ mentioned damage level. **Observations to be recorded** Pod bug population/plant, Pod Damage (%), Seed yield (kg/ha), BCR	Yield loss due to sesame pod bug will be assessed

Action Plan 5. Management of Castor capsule borer			
Dr. B. Geetha, Assoc. Professor (Entomology), TCRS, Yethapur			
Activity	**Name of the scientist and centre**	**Observations to be recorded**	**Deliverables/ expected outcome**
Integrated Management of capsule borer in Castor *Kharif* season Hybrid: YRCH 1 Treatments T1 - IPM capsule • Collection and destruction of infested shoots & adopting proper	RRS, Vriddhachalam Dr.R.Sheeba Jasmine, TCRS, Yethapur Dr.B.Geetha, Assoc. Prof (Entomology) AC&RI, Vazhavachanur Dr.V.Radhakrishnan,	Observation to be recorded: Capsule borer Damage (%), Natural enemies population, yield and BCR	• Effective management strategy will be evolved for castor capsule borer

agronomic practices • Application of NSKE 5 % at flowering stage • Application of Azadiractin 10000 ppm @ 1.5 ml/lit as prophylactic (75 to 85 DAS) • Application of chlorantraniliprole @ 0.3ml/lit at 10% capsule damage T2 – Farmer's practice T3 – Control Replication: 7			

Action Plan 6. Management of whitefly in castor			
Theme leader	**Dr. B. Geetha, Assoc. Professor (Entomology), TCRS, Yethapur**		
Activity	**Name of the scientist and centre**	**Observations to be recorded**	**Deliverables/ expected outcome**
Development of suitable IPM strategy for castor whitefly *Rabi* season • single bloom cultivar - DCH177 T1- IPM capsule • Border crop – Okra • Installation of yellow sticky trap (25/ha) • Spraying of any neem product (Neem oil • 3% or NSKE 5%) • Application of cyantraniliprole 10.3% D @ 1ml/lit when population exceeds grade 1 (101 to 200 pupae/leaf)	RRS, Vriddhachalam Dr.Sheeba Jasmine, AP (Entomology) TCRS, Yethapur Dr.B.Geetha, Assoc. Prof (Entomology) AC&RI, Vazhavachanur Dr.V. Radhakrishnan, AP (Ento)	**Observation to be recorded:** Whitefly population, Damage (%) and grade, Natural enemies population, yield and BCR	Effective management practices for castor whitefly

T2- Farmer's practice T3 – Control Replication: 7			

Action Plan 7. IPM capsule for managing major insect pests in sunflower			
Theme leader	**Dr. S. Jeyarajan Nelson, Prof (Entomology), TNAU, Coimbatore**		
Activity	**Name of the scientist and centre**	**Observation to be recorded**	**Deliverables/ expected outcome**
Integrated pest management strategy for sunflower pest Treatment T1- IPM capsule Soil application of neem cake @ 250 kg/ha, Seed treatment with imidacloprid 70 WS at 7 g/kg, Need based application of systemic insecticides (30 DAS), Need based application of flubendiamide (0.4 ml/lit) capitulum formation T2 – Farmer's practice T3 - Control	TNAU, Coimbatore, Dr. S. Jayarajan Nelson,.Prof (Entomology) AC&RI, Killikulam Dr. Abdul Razak, Prof. (Entomology) AC&RI, Madurai Dr. K. Premalatha, AP (Entomology) ADAC&RI, Trichy Dr.P.Yasodha, AP(Entomology)	**Observation to be recorded:** Sucking and borer pest population, Damage (%), Natural enemies population, yield and BCR	Effective management strategy will be evolved for sunflower insect pest

Theme 3 : Action Plan 8. Bio-intensive management of soil-borne diseases of groundnut by *Actinomycetes*			
Theme leader	**Dr. S. Thangeswari, Asst. Professor (Plant Pathology), ORS, Tindivanam**		
Activity	**Name of the scientist and centre**	**Proposed Activities for 2020-2021**	**Deliverables/ expected outcome**
Bio-intensive management of soil-borne diseases of groundnut by *Actinomycetes*	Dr. S. Thangeswari, Asst. Professor (Pl.Path.), ORS, Tindivanam	Isolation, characterization, formulation development and evaluation of talc based formulation of *Actinomycetes* against soil-borne diseases of groundnut **Observations:** 1. Germination percentage 2. Nodule and root length	Effective management strategy will be evolved for major diseases of groundnut

		3. Disease incidence (dry root rot, *Sclerotium* root rot and collar rot etc.,) 4. Plant biomass 5. Pod yield	

Action Plan 9. Integrated disease management in sesame			
Theme leader	**Dr. B. Meena, Assoc. Professor (Pl. Path), RRS, Vriddhachalam**		
Activity	**Name of the scientist and centre**	**Proposed Activities for 2020-2021**	**Deliverables/ expected outcome**
Integrated disease management of sesame	Dr. B. Meena, Assoc. Professor (Pl.Path.), RRS, Vriddhachalam	Effect of bioagents, fungicides and insecticides will be evaluated against major diseases of sesame **Observations:** 1) Root rot incidence 2) Phyllody incidence and vector population 3) Leaf spot disease intensity 4) Powdery mildew disease intensity 5) Seed yield	Effective management strategy will be evolved for major diseases of sesame

T_1 – ST with *Trichoderma asperellum* @ 4g/kg + FS of propiconazole @ 1 g/l on 30 & 45 DAS

T_2 – ST-*T. asperellum* 4g/kg + FS of Thiamethoxam 25 WG @ 0.5 g/l on 30 DAS + FS of propiconazole @ 1 g/l on 45 DAS

T_3 – ST-*Bacillus subtilis* 10g/kg + FS of propiconazole @ 1 g/l on 30 & 45 DAS

T_4 – ST-*B. subtilis* 10g/kg + FS of Thiamethoxam 25 WG @ 0.5 g/l on 30 DAS + FS of propiconazole @ 1 g/l on 45 DAS

T_5 – ST - Thiamethoxam 25 WG @ 5 g/kg + FS of Thiamethoxam 25 WG @ 0.5 g/l on 30 DAS + FS of propiconazole @ 1 g/l on 45 DAS

T_6 - Control

Action Plan 10. Management of Botryotinia grey mold and capsule borer in castor			
Theme leader	**Dr. M. Deivamani, Asst.Professor (Pl.Path), TCRS, Yethapur**		
Activity	**Name of the scientist and centre**	**Proposed Activities for 2020-2021**	**Deliverables/ expected outcome**
Development of suitable management practices for the control of *Botryotinia ricini* and capsule borer in castor	Dr. M. Deivamani, (Plant Pathology), Dr.B. Geetha, (Agrl. Ento.) TCRS, Yethapur	Confirmation field trial will be carried out. **Observations:** 1.Disease incidence 2.Pest infestation 3.Seed yield	Integrated management practices for Grey mold and Capsule borer in castor

Treatment details

T1- Seed treatment with *Bacillus subtilis* @ 10g/kg and foliar spray of *B. subtilis* @ 0.2 percent (45, 60 and 75 DAS)
T2– Foliar spray of *Bacillus subtilis* 0.2 per cent + *Beauveria bassiana* @ 2kg / ha (45, 60 and 75 DAS)
T3 – Foliar spray of Propiconazole @ 0.1 per cent and profenophos 50 EC @ 0.025% (45, 60 and 75 DAS)
T4 – Control

Action Plan 11. IDM for major diseases of sunflower			
Theme leader	**Dr. L. Rajendran, Asst. Professor (Pl.Path), TNAU, Coimbatore**		
Activity	**Name of the scientist and centre**	**Proposed Activities for 2020-2021**	**Deliverables/ expected outcome**
Integrated disease management (IDM) of necrosis, leaf spot and powdery mildew in Sunflower	Dr. L. Rajendran, Asst. Professor (Pl. Pathology). Confirmation field trial will be carried out.	*In vitro* evaluation of SA 50 and 100 ppm, zineb + hexaconazole against *Alternaria* and *Golovinomyces* conidia.	Effective management strategy will be evolved for sunflower diseases

T_1-Seed treatment (ST) with salicylic acid @ 50 ppm, foliar spray with neem oil 3% during 30 DAS, foliar spray with zineb + hexaconazole @ 2.5g/l on 45 and 60 DAS
T_2- Seed treatment (ST) with salicylic acid @ 100 ppm, foliar spray with neem oil 3% during 30 DAS, foliar spray with zineb + hexaconazole @ 2.5g/l on 45 and 60 DAS
T_3- ST with imidacloprid 70WS @ 2g/kg seed + two sprays of propiconazole @ 0.1 per cent on 45 and 60 DAS
T_4-Control

Action Plan 12. Bio-management strategy for powdery mildew diseases of sunflower and sesame			
Theme leader	**Dr. B. Meena, Assoc. Professor (Pl. Path), RRS, Vriddhachalam**		
Activity	**Name of the scientist and centre**	**Proposed Activities for 2020-2021**	**Deliverables/ expected outcome**
Biological management of powdery mildew in sunflower and sesame using *Ampelomyces* spp.	Dr. B. Meena, Assoc. Professor (Pl.Path.), RRS, Vriddhachalam Dr. L. Rajendran, Asst. Professor (Pl.Path), TNAU, Coimbatore	Isolation, characterization, *in vitro* efficacy and formulation development, field evaluation of *Ampelomyces* spp.	Eco-friendly management strategy will be evolved for sunflower and sesame powdery mildew

Work to be done

1. Isolation and characterization of *Ampelomyces*
2. *In vitro* efficacy against powdery mildew of sunflower and sesame
3. Formulation development and greenhouse and field testing

Action Plan 13. Eco-friendly management of foliar diseases in groundnut			
Theme leader	**Dr. Dr.G.Senthilraja, Asst. Prof. (Pl. Path.), RRS, Vriddhachalam**		
Activity	**Name of the scientist and centre**	**Proposed Activities for 2020-2021**	**Deliverables/ expected outcome**
Eco-friendly management of late leaf spot and rust diseases in groundnut by using Mycoparasitic fungus *Sphaerellopsis* spp.	Dr.G.Senthilraja, Asst. Prof. (Pl. Path.), RRS, Vriddhachalam and Dr. C.Ushamalini, Asst. Prof. (Pl. Path.), CRS, Aliyarnagar	Isolation, characterization, *in vitro* efficacy and formulation development, field evaluation of *Sphaerellopsis* spp.	Effective management strategy will be evolved for groundnut foliar diseases

Work to be done

1. Isolation and characterization of *Sphaerellopsis*
2. *In vitro* efficacy against leaf spot and rust pathogens
3. Formulation development and greenhouse and field testing

3.2. Technolgies for adotion/OFT/Information

A. Technology for Adoption

1. Effect of border crop with organic amendment on insect pests of groundnut

Combination of Groundnut + Pearl millet + Neem cake (250 kg/ha) recorded minimum population of thrips (3.3/plant), leafhopper (2.4/plant); damage by GLM (12.2%) and *Spodoptera litura* (6.8%); and increased natural enemies activity with more pod yield and BCR of 1:2.35.

2. Management of whitefly and thrips in castor

Application of buprofezin 25 SC @ 0.8 ml/lit was more effective against whitefly (72.31%) and thrips (76.48%) with maximum yield (1531kg/ha) and BC ratio 1:2.85.

3. Integrated disease management in groundnut

Seed treatment with tebuconazole 1.5 g/kg + basal soil application of *Trichoderma asperellum* @ 2.5 kg/ha mixed with 50 kg FYM + application of *T. asperellum* @ 2.5 kg/ha mixed with 50 kg FYM at 40 DAS + two spray of tebuconazole @ 1 ml/l at initiation of foliar diseases and 15 days later was found to be effective in reducing the incidence of collar rot (4.55%), root rot (5.36%), stem rot (4.32%), late leaf spot (23.93 PDI) and rust (13.80 PDI) diseases of groundnut besides increasing the pod yield (1917 kg/ha) with a higher BCR of 2.77 as compared to control which recorded disease incidence of collar rot, root rot, stem rot, late leaf spot and rust 13.89%, 19.95%, 11.20%, 54.56 PDI and 31.55 PDI, respectively with the pod yield of 1271 kg/ha.

B. Technology for OFT

OFT 1: IPM capsule for leaf miner management in groundnut

Treatments:

T_1	IPM module (Application of neem cake @ 250 kg/ha; Installation of light trap @1/ha; monitoring with pheromone trap @12/ha; *Metarhizium rileyi* @ 4g/lit (CFU 10^8 / ml); Cumbu as intercrop (6:1) and cow pea as border crop; Azadirachtin 1% @ 1.5 ml/lit ; Need based application of insecticide - Novaluron 10EC @ 2 ml / lit.)
T_2	Farmers' Practice
T_3	Control

Season: *Kharif* 2020
Variety: Popular variety in respective region
Spacing: 30 x 10 cm
Replications: 7
No of Trial: 2/centre. (one in farm field and another one in farmers field)

Observations to be taken

1. Population and damage (%) of leaf miner
2. Population of entomophages in main and border crops
3. Pest defender ratio (PDR), occurrence ratio (OR), Preference ratio (PR)
4. Yield (kg/ha) and CBR

Centre	Scientists Identified
AC&RI, Kudumiyanmalai	Dr. K. Chandramani, Professor (Entomology)
AC&RI, Killikulam	Dr. G. Ravi, Prof. (Entomology)
CRS, Aliyarnagar	Dr. M. Alagar, AP (Entomology)
TCRS, Yethapur	Dr. B. Geetha, Assoc. Prof. (Entomology)
AC&RI, Vazhavachanur	Dr.V. Radhakrishnan, AP (Entomology)
IOA, Kumulur	Dr. V. Baskaran, AP(Entomology)

OFT 2: Management of sesame pests through ecofeast border crops and organic amendments

Treatments:

T_1- Sesame + maize + vermicompost @ 2.5 t/ha
T_2- Sesame + maize+ neem cake @ 250 kg/ha
T_3- Sesame + sorghum+ vermicompost @ 2.5 t/ha
T_4- Sesame + sorghum+ neem cake @ 250 kg/ha
T_5- Untreated check (Sesame alone)

Variety : VRI 2 or any popular variety in respective region

Season *:* *kharif* 2020 and *rabi* 2021
Replication : Five

Centres	Scientist identified
AC & RI, Eachangkottai	Dr. S. Thirumurugan. Prof (Entomology)
ADAC&RI, Trichy	Dr. P. Yasodha AP (Entomology)
AC & RI, Vazhavachanur	Dr.V. Radhakrishnan, AP (Entomology)
ARS, Virinjipuram	Dr.P.Thilagam, AP (Entomology)
IOA, Kumulur	Dr. V. Baskaran, AP(Entomology)

Observation to be recorded

- Pest population, damage (%), phyllody incidence,
- Natural enemies population in main and border crop,
- Pest defender ratio (PDR), occurrence ratio (OR), Preference ratio (PR)
- Yield and BCR

OFT 3: Biological management of root rot disease of sesame

Treatments:

T_1: Soil application of *Trichoderma asperellum* (2.5 kg/ha) mixed with FYM @150 kg and VAM 10 kg as basal application
T_2: Soil drenching with carbendazim @ 1 g/l at 30 DAS
T_3: Control
Spacing: 30x30 cm; Variety: VRI 2; Replications: Seven; Design: RBD

Observations to be recorded

1. Root rot disease incidence
2. Seed yield
3. CBR
4. Population of *Trichoderma* and VAM at monthly interval

Co-ordinating centre: RRS, Vriddhachalam

Centres	Scientist identified
RRS, Vriddhachalam	Dr.B.Meena, Assoc. Prof (Pl. Pathology)
ORS, Tindivanam	Dr.S.Thangeswari Asst. Prof (Pl. Pathology)
CRS, Srivilliputhur	Dr. Vimala, Professor (Pl. Pathology)
IOA, Kumulur	Dr.P.Mahalakshmi Asst. Prof (Pl. Pathology)
CRS, Aliyarnagar	Dr.C.Ushamalini, Associate Professor (Pl. Pathology)

For Information

Agricultural Entomology

Groundnut

- IPM capsule (Application of neem cake @ 250 kg/ha; Installation of light trap @1/ha; Monitoring with pheromone trap @12/ha; *Metarhizium rileyi* @ 4g/lit (CFU 10^8 / ml); Cumbu as intercrop (6:1) and Cow pea as border crop; Azadirachtin 1% @ 1.5 ml/lit ; Need based application of insecticide - Novaluron 10EC @ 2/ml) recorded minimum GLM damage (2.11 %) with high pod (1203kg/ha), fodder yield (2475kg/ha) and BC ratio of 1:2.05

- Leafminer & *S. litura* incidence was less in Pongamia oil derived formulation @ 3ml/lit and quinalphos 2ml/lit on 14 DAS

- Extract of basil leaf @ 5% was highly effective against spider mites on groundnut with 82.30% reduction and high cost benefit ratio of 1:2.45

Sesame

- Pongamia oil derived formulation @ 3ml/lit and azadirachtin 10000 ppm @ 1.5 ml/lit were on par with each other in reducing shoot webber damage & leafhopper population

Plant Pathology

Groundnut

- The groundnut entries *viz*., VG19561 and VG19654 were found to be resistant against late leaf spot disease with the higher amount of carbohydrates (7.05mg/g), protein (5.22 mg/g), phenols (4.49mg/g) and tannin (4.63mg/g).

- The groundnut entries *viz*., MLTGNSB 1901 and MLTGNSB 1911 showed resistant reaction to rust with more phenol accumulation.

- Basal soil application of *Trichoderma asperellum* (2.5kg/ha) enriched in FYM @ 100 kg applied as basal and at 40 DAS significantly reduced the incidences of soil borne diseases of groundnut.
- The rhizoscanner study revealed that seed treatment with *P. fluorescens* (Pf1) was found to be suitable for rainfed condition also in root rot management of groundnut and also increasing root length (1436mm), root tips (236Nos) and forks (323Nos).

Sesame

- The sesame genotypes VS 13006 (SIK 18-03) showed moderately resistant reaction to root rot and phyllody. The biochemical compounds *viz*., carbohydrates, protein, total phenols and tannins were found to be higher in VS 13006.
- Seed treatment with *Trichoderma asperellum* @ 4g/kg of seed followed by spraying of carbendazim + mancozeb @ 0.1% on 30 DAS was effective in managing root rot, *Alternaria* leaf spot, powdery mildew and phyllody diseases of sesame with increased yield.
- In the integrated management of root rot of sesame using bioagent, VAM and organic amendment, soil application of *T. asperellum* @ 2.5 kg/ha mixed with FYM at the rate of 150 kg and VAM 10 kg/ha and applied as basal was found to be effective.

Sunflower

- The sunflower entries *viz*., IR 6 and PM-81 showed resistant reaction to powdery mildew disease under artificial inoculated conditions.
- In sunflower, seed treatment with salicylic acid @ 100 ppm, foliar spraying with neem oil 3% at 30 DAS, foliar spray with zineb + hexaconazole @ 2.5g/lit during 45 and 60 DAS showed no incidence of necrosis and lower severities of leaf spot and powdery mildew with higher yield of 1669 kg/ha and BC ratio of 1:1.90.

Castor

- In castor, foliar spray of carbendazim @ 0.2% and profenophos 50 EC @ 0.025% at 45, 60 and 75 DAS was effective in managing grey mold disease and capsule borer damage with the higher seed yield.

3.3.Research Projects and remarks

List of URP/AICRP/ERP

Discipline	Univeristy Research Project	AICRP project	Student research work	Total
Agricultural Entomology	2	3	-	5
Plant Pathology	8	4	1	13

Plant Pathology

Crops	URP	AICRP
Groundnut	4	1
Sesame	3	1
Castor	-	1
Sunflower	1	1

Agrl. Entomology

Crops	URP	AICRP
Groundnut	1	1
Sesame	1	1
Castor	-	1
Sunflower	-	-

Remarks on the ongoing University Research Projects

1. AGRICULTURAL ENTOMOLOGY

Sl. No	Project No. and Title	Remarks
1.	**CPPS /ALR/ ENT/ GNT/2015/ 001** Screening groundnut breeding materials against insect pests for exploitation of resistance. (2015-2019) **Dr. K. Rajamanickam**	Many genotypes have been screened but needs clarity for grade or scale? Decoding has to be done for all the entries used. The project may be concluded, the final report may be submitted with the published article. (Need clarification from scientist concerned (Dr. M. Alagar). For 2019-2020 progress report was not submitted
2.	**CPPS/VRI/ENT/SES/2016/001** Introducing eco-feast crops and enhancing soil fertility to improve plant pest natural enemy interactions in sesame (2016-2019) **Dr. R. Sheeba Jasmine**	Closure report with statistically analysed data may be submitted with the published article within 30.06.2020. A new URP may be proposed.

II. PLANT PATHOLOGY

S. No.	Project No. and Title	Remarks
1	**CPPS/TMV/PAT/GNT/2017/001** Standardization of dose of *Trichoderma asperellum* and *Pseudomonas fluorescens* for groundnut by different methods of application (September 2017 to August 2020) **Dr. M. Rajakumar**	Completion report was submitted. A new URP may be submitted for approval.

2	**CPPS/ALR/PAT/GNT/2017/001** Identifying the mechanism of resistance in groundnut breeding materials against rust and late leaf spot diseases (January 2017 to December 2019) **Dr. S. Sundravadhana**	Completion report has to be submitted on or before 30.06.2020. The outcome of the project may be published. A copy of the publication (both soft and hard copy) from this URP may be sent to Director (CPPS) for documentation.
3	**CPPS/VRI/PAT/GNT/2017/001** Management of soil borne diseases of groundnut by using bioinoculants and organic amendments (June 2017 to May 2020) **Dr. G. Senthilraja**	Completion report has to be submitted on or before 30.06.2020 and a new URP may be proposed based on the theme area on or before 30.06.2020.
4	**CPPS/CTN/PAT/GNT/2016/001** Integrated diseases management of soil borne diseases of groundnut under rainfed conditions (April 2016 - March 2019) **Dr. M. Paramasivan**	Completion report was submitted. New URP was submitted for approval.
5	**CPPS/VRI/PAT/SES/2017/001** Management of root rot (*Macrophomina phaseolina*) disease of Sesame (*Sesamum indicum* L.) (January 2017 to December 2019) **Dr. B. Meena**	Completion report was submitted and presented. The project outcome was recommended for OFT. A New URP may be submitted for approval.
6	**CPPS/CBE/PAT/SES/2017/001** Effect of liquid formulation of *Pseudomonas fluorescens* and *Bacillus amyloliquefaciens* on the management of leaf blight and charcoal rot of sesame (*Sesamum indicum* L.) (April 2017 to March 2020) **Dr. M. Muthamilan**	Project may be continued.
7.	**CPPS/CBE/PAT/SNF/2018/001** Effect of *Ampelomyces quisqualis* on the management of sunflower powdery mildew caused by *Golovinomyces cichoracearum* (April 2018 to March 2021) **Dr. L. Rajendran**	More *Ampelomyces* isolates may be collected and evaluated. Project may be continued.
8.	**CPPS/CBE/PAT/SES/2019/001** Studies on seed borne fungi in sesame (September 2019 to August 2022) **Dr. T.Anand**	Project may be continued.

Specific recommendations of Director, CPPS

- All the scientists are instructed to monitor the insect pests, diseases and nematodes of oilseed crops in their districts regularly. If any outbreak of existing pests, disease and nematodes or occurrence of new insect pests, diseases and nematodes of oilseed crops are noticed report to the Director (CPPS) immediately.

- Monthly pest and disease surveillance report should be submitted to the Professor and Head, Department of Agrl. Entomology, CPPS on or before 25th of every month without fail in the Google Forms for consolidation.

- Basic work on mechanism of resistance, effect of cropping systems on pests and diseases and their natural enemies, insect- plant interaction, host pathogen interaction and induced systemic resistance should be taken up using PG and Ph.D. students.

- The dates given for sending the closure / deletion /extension/ change of project leadership should be strictly adhered.

- Inter-disciplinary research projects are encouraged to solve the emerging crop protection problems in oilseed crops.

- Soft and hard copies of publications made from URP should be submitted to the Director, CPPS for documentation.
- All microbial bio-inoculants used for plant protection by the scientists should have accession no. assigned by the Professor & Head, Department of Plant Pathology, CPPS, TNAU, Coimbatore.

- Post graduate students may be involved to work on basic research of theme area, wherever possible.

General Remarks of the Vice Chancellor

1. Comparative analysis of preference of Gujarat groundnut varieties over TNAU varieties by farmers (**Action :** Director, CARDS)

2. Standardization of package of practices for mono stem sesame prior to release (**Action :** Director, CM)

3. Permission for export of TMV 2 seed has been given showed the global impact and hence, all the ruling variety which is performing well has to be registered with the help of former special officer (seeds) (**Action :** Director, CPBG & Director, Seed Centre)

4. Economics have to be worked for the conversion of biodiesel from caster seeds (**Action :** Dean, AEC&RI, Coimbatore)

5. E-nose sensor which is a monitoring device used for high volume long storage conditions and will be fixed in storage godown to see the seed viability deterioration (**Action :** Director, Seed Centre)

6. Forewarning model has to be developed for important pests by utilising the services of Statistician, Mathematician and agro-climatic research centre scientists (**Action :** Director, CPPS, Dean, AEC&RI, Coimbatore and Director, CM)

7. Nipping in castor variety YTP 1 through chemicals may be explored against manual nipping by secateurs (**Action:**TCRS, Yethapur).

8. Crop geometry of groundnut has to be altered to suit mechanization in collaboration with the Department of Agronomy (**Action:** Dean, AEC&RI, TNAU, Coimbatore).

9. Bird scarers available at different locations are to be explored and it may be tested for oilseed crops (**Action:** Director of Research; Dean, AEC&RI, TNAU, Coimbatore).

10. TNAU Crop Boosters developed by Department of Crop Physiology are exclusive formulations to improve the yield, quality and also abiotic stress tolerance by influencing nutrition and hormonal status of the crops. Hence, the nutrient mixtures/formulations proposed from other Departments for correcting specific nutritional problems, be compared with TNAU Crop Boosters. (**Action :** Director of Research; Director, CM; Director, DNRM)

Concluding Remarks of the Vice Chancellor

- The seed viability problem in VRI 5 may be studied with the help of crop physiology department (**Action :** Director, Seed Centre & Director, CM)

- In the groundnut crop, collaboration with ICRISAT has to be done to evolve new resistant lines and variety development programme (**Action :** Director, CPBG)

- Focus has to be done on the studies of fodder purpose groundnut after harvesting the crop (**Action :** Director, CPBG)

- Genetic markers has to be developed for bold seeded variety in groundnut and pistillate flower identification (**Action :** Director, CPBG)

- Sesame in rice fallow system has to be studied and sulphur solubilising bacteria is a new approach / idea has to be strengthened for product development (**Action :** Director, NRM)

- All the beneficial microbes in a single package system needs to be studied (**Action :** Director, NRM)

- For the use of biocontrol agents, mode of application and mode of delivery needs to be studied (**Action :** Director, CPPS)

- For the insect and disease management, single product with multiple mode of action may be studied / evolved (**Action :** Director, CPPS)

Remarks of the Director of Research

- A task force to be formed to develop a technology package to manage parrot damage in sunflower

- All the beneficial microbes to be made as TNAU microbial consortia to augment oilseed productivity

- Pest and disease forecasting model has to be developed by utilising GIS based technology and in future drones may be utilised for the crop damage level assessment by biotic or abiotic stress

- Early diagnosis / detection kit needs to be developed for the pathogen management

DIRECTOR OF RESEARCH

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