PROCEEDINGS OF THE 35th SCIENTISTS' MEET ON PULSES HELD ON 13.04.2017 AT TNAU, COIMBATORE

The 35th Scientists' Meet on Pulses was held on 12.04.2017 and 13.04.2017 at TNAU, Coimbatore. The Vice-Chancellor, Director of Research, Technical Directors, Deans and Special Officers, Scientists from different research stations attended the Crop Scientist Meet (Pulses). Review on progress of university research projects was taken up by the Technical Directors at respective directorates on 12.04.2017. Salient findings emanated from the results of the experiments conducted by the scientists were taken up for presentation and deliberation for the next day.

The Plenary session was held on 13.04.2017. The meeting began with a prelude by Dr. V. Ravi, Director, TRRI, Aduthurai. Action taken report on the recommendations made during previous crop scientist meet and progress report of various projects were presented by the lead scientists of the respective disciplines.

Dr. N.Manivannan, Professor and Head, National Pulses Research Centre, Vamban made a presentation on the action taken report of 34th Pulses Scientist Meet. Dr. S.Marimuthu, Assistant Professor (Agronomy) made a presentation on the action taken report and salient findings pertaining to Crop Management. Later, Dr. Zadda Kavitha, Assistant Professor (Agricultural Entomology) made a presentation on the action taken report and salient findings pertaining to Agricultural Entomology. Then, Dr. V.K. Satya, Assistant Professor (Plant Pathology) made a presentation on the action taken report and salient findings with respect to Plant Pathology.

Action plans for the next two years for crop improvement, crop management and crop protection were presented by the Director (CPBG), Director (DCM) and Director (CPPS) respectively.

The meeting was concluded by the remarks of the Vice Chancellor and Director of Research.

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The proceedings of the Pulses Scientist Meet- 20017 were furnished under the following headings:

I. Crop Improvement

   a. Decisions made on the entries for Variety Release Proposal/ART/OFT/MLT evaluation from breeders
   b. Research projects on Pulses
   c. Remarks on the ongoing university research subprojects/AICRP/Externally funded projects
   d. General remarks
   e. Action Plan 2016-2019
   f. Work allocation among scientists as per action plan

II. Crop Management

a. Decisions made on OFT
b. Research projects on Pulses
c. Remarks on the ongoing university research subprojects/AICRP/Externally funded projects
d. General remarks
e. Action Plan 2016-2019
f. Work allocation among scientists as per action plan

III. Crop Protection

a. Decisions made on OFT
b. Research projects on Pulses
c. Remarks on the ongoing university research subprojects/AICRP/Externally funded projects
d. General remarks
e. Action Plan 2016-2019
f. Work allocation among scientists as per action plan

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I. Crop Improvement

a. Decisions made on the entries for Variety Release Proposal/ART/OFT/MLT evaluation from breeders

I. <u>Cultures identified for variety release (2017-18)</u>

a) Blackgram

Culture	Pedigree	Duration	Seed yield (kg/ha)			Yield increase over check		Special features
			COBG 10-05	CO 6(C)	VBN 6(C)	CO 6(C)	VBN 6(C)	
COBG 10-05	VBN 5 x *V. mungo* var *silvestris* /22/10	60-65 days	880	800	785	10.0	12.1	Medium bold seeded; Resistant to MYMV, leaf crinkle, stem necrosis.

b) Cowpea

Culture	Pedigree	Duration	Seed yield (kg/ha)			Yield increase over check		Special features
			VCP 09-013	CO (CP) 7	VBN 1	CO(CP) 7	VBN 1	
VCP 09-013	TLS 38 x VCP 16-1	70-75 days	915	819	812	11.72	12.68	Bold seeded, determinate plant type with synchronized maturity and brown seeds

II. Cultures identified for the evaluation under ART – (2017-18)

a) Redgram

Culture/check	Duration (days)	Seed yield (kg/ha)	Yield increase over check		Special features	Season
			CO 6(C)	Vamban 2(C)		
CRG 10-12 (R)	180	1160	33.85	28.9	High yield, SMD resistant (7.5%) MR to root rot (12.5%)	Kharif (July-August)
Checks	CO 8, VBN 2					

b) Blackgram

Culture/check	Duration (days)	Seed yield (kg/ha)	Yield increase over check		Special features	Season
			VBN 6	VBN 8		
VBG 11-016 (R)	60-65	1137	16.6	-	High yield, MYMV resistant	Kharif (June-July) Rabi (Sep.-Oct)
Checks	VBN 6, VBN 8					

c) Greengram

Culture/check	Duration (days)	Seed yield (kg/ha)	Yield increase over check (%)		Special features	Season
			VBN 3	CO(GG) 8		
VGG 10-008 (N)	70-75	961	10.2	30.3	High yield, Moderately resistant to MYMV	Kharif (Jun-Jul) Rabi (Sep-Oct)
VGG 05-009 (R)	75	882	10.8	29.4	High yield, Moderately resistant to MYMV	
Checks	VBN 3, CO (GG) 8					

ART 2017-18
Distribution of ARTs

Trial No.	Redgram 1/2017-18	Blackgram 1/2017-18	Blackgram 2/2017-18	Greengram 1/2017-18	Greengram 2/2017-18
Season	Kharif (Jun-Jul)	Kharif (Jun-Jul)	Rabi (Dec-Jan)	Kharif (Jun-Jul)	Rabi (Dec-Jan)
Districts	Villupuram, Vellore, Thiruvannamalai, Cuddalore, Dharmapuri, Krishnagiri, Salem, Namakkal, Coimbatore, Erode, Trichy, Perambalur, Karur, Pudukkottai, Madurai, Theni, Dindigul, Virudhunagar, Sivagangai and Thirunelveli (120 Trials – six trials in each district)				
KVK	Vamban, Sirugamani, Kuntrakudi, Madurai, Ramnad, Virudhachalam, Tindivanam, Vrinjipuram, Paparapatti and Tirur (40 trials - Four trials in each KVK)				

III. Cultures identified for the evaluation under OFT – 2017-18

1. On Farm Trial – Mochai (Short duration)

S. No	Cultures	Parentage	Grain yield (kg/ha)	Duration (days)	Yield increase over check (CO 2) (%)	Special features
1.	PYR 03-004 (R)	Selection from DL 2564	895	110	14.0	• High yield and drought tolerant • 30 days earlier than CO 2
Check		CO 2 (C)				

OFT (50): OFT will be conducted at five districts viz., Dharmapuri, Krishnagiri, Salem, Vellore and Dindigul @ 10 locations per district during kharif 2017.

IV. Cultures identified for the evaluation under Multi location trial – 2017-18

1. Multilocation Trial – Redgram (Short duration)

Design : RBD	No. of replications	:	Four
Plot size : 4 × 3 m^2	Seed Quantity	:	250 g/entry/location
Spacing : 60 x 20 cm	Season	:	Kharif

S. No.	Culture	Parentage	Grain yield (kg/ha)	Duration (days)	Yield increase over check (%)	Special features
1.	CRG 2013-12(R)	ICPL 2052 x ICPL 86020	1509	115-120	15.7 (CO 7)	High yielder, SMD and Wilt tolerance
2.	CRG 2013-02 (N)	CO (Rg) 7 x AL 1734/2	1552	120	17.84 (CO(Rg)7)	High yielder SMD resistance 5-6 seeds per pod
3.	VRG 12-005(N)	VBN(Rg) 3 x CORG 9701	1259	120	20.6 (VBN(Rg)3)	High yield, resistant to SMD and Fusarial wilt
Checks		VBN(Rg)3, CO(Rg)7				
Locations		Vamban, Coimbatore, Paiyur, Melalathur, Yethapur, Virinjipuram				

Note: Artificial screening for the following pests and diseases will be carried out by NPRC, Vamban and Dept. of Pulses, Coimbatore.

Name of the centre	Pests	Diseases
NPRC, Vamban	Pod borer complex	SMD and Wilt
Dept of Pulses, Coimbatore	Pod borer complex	SMD and Wilt

2. Multilocation Trial – Redgram (Long duration)

Design : RBD	No. of replications	:	Four
Plot size : 4 × 3 m^2	Seed Quantity	:	250 g/entry/location
Spacing : 90 x 25 cm	Season	:	Kharif

Features of the redgram MLT cultures

S. No.	Culture	Parentage	Grain yield (kg/ha)	Duration	Yield increase over check (%)	Special features
1.	CRG 2013-01(R)	Co 6 x JKM 198	1894	180	12.4 (Vamban 2)	SMD and Wilt resistant
2.	CRG 2013-007(N)	CO(Rg) 7 x ICPL 7835	1840	180	16.82 (CO 6)	SMD and Wilt resistant
3.	VRG 08-004 (N)	Vamban 2 x VRG 17	1359	180	10.5 (Vamban 2)	High yield, resistant to SMD and wilt
Checks		Vamban 2, CO 8				
Locations		Vamban, Coimbatore, Paiyur, Melalathur, Yethapur, Virinjipuram				

Note: Artificial screening for the following pests and diseases will be carried out by NPRC, Vamban and Dept. of Pulses, Coimbatore.

Name of the centre	Pests	Diseases
NPRC, Vamban	Pod borer complex	SMD and Wilt
Dept of Pulses, Coimbatore	Pod borer complex	SMD and Wilt

3. Multilocation Trial – Blackgram

Design : RBD	No. of replications : Three
Plot size : 4 × 3 m^2	Seed Quantity : 200 g/entry/location
Spacing : 30 × 10 cm	Season: *kharif*, *rabi*, rice fallow and summer irrigated

Features of the proposed culture

Sl. No	Culture	Parentage	Grain yield (kg/ha)	Duration (days)	Yield increase over check (%)	Special features
1.	VBG 12-062 (R)	PU 31 x CO 6	1242	65-70	46.3 (VBN 6)	High yield and MYMV resistant
2.	VBG 12-111 (R)	Mash 114 x VBN 3	1168	60-65	37.6 (VBN 6)	High yield and MYMV resistant
3.	ADBG 13 023 (R)	ADT 5 x PBG 4	772	70-75	9.65 (ADT 3)	High yield and suitable for rice fallow

4.	AD (TR) BG14003 (R)	Mutant of ADT 3	746	70-75	25.6 (ADT 3)	High yield and suitable for rice fallow
5.	COBG 13-04 (R)	T 9 x ADT 5	1009	60-65	11.0 (CO 6)	High yield, MYMV tolerant and large seeded type
6.	KKB-14-001 (R)	IPU 2006-01 x ADT 3	922	60-65	11.2 (ADT 3)	High yield, resistant to YMV. Suitable for Summer irrigated and rice fallows.
7.	VBG 13-003 (N)	KU 2016 x VBN 3	1013	65-70	25.68 (VBN 8)	High yield and MYMV resistant
8.	VBG 14-016 (N)	VBN 4 x PU 133-19	1024	65-70	27.04 (VBN 8)	High yield and MYMV resistant
9.	COBG 13-08 (N)	VBN 4 x V. mungo var silvestris 22/2	1007	60-65	13.14 (CO 6)	High yield, Resistant to MYMV (score 2.0).
10.	COBG 13-14 (N)	T9 x VBN 3	994	60-65	11.7 (CO 6)	High yield, Resistant to MYMV (score 2.0).

Checks		VBN 6, VBN 8, ADT 6 (Rice fallow) and ADT 5 (Summer irrigated)
Locations	Kharif (Jun-Jul)	Vamban, Coimbatore, Paiyur, Madurai, Virinjipuram and Killikulam
	Rabi (Sep-Oct)	Coimbatore, Vamban, Aruppukkotai, Kovilpatti, Madurai, Chettinad and Tindivanam
	Rice fallow (Jan – Feb)	Aduthurai, SWMRI Thanjavur and Killikulam
	Summer Irrigated (Feb – Mar)	Aduthurai, Thanjavur, Pattukkottai, Vamban, Coimbaore and KVK Needamangalam

Note: Artificial screening for the following pests and diseases will be carried out by NPRC, Vamban and Dept. of Pulses, Coimbatore.

Name of the centre	Pests	Diseases
NPRC, Vamban	Pod borer and white fly	MYMV, LCV, Powdery mildew, root rot
Dept of Pulses, Coimbatore	Pod borer and white fly	MYMV, LCV, Powdery mildew, root

		rot

4. Multilocation Trial – Greengram

Design : RBD	No. of replications : Three
Plot size : 4 × 3 m^2	Seed Quantity : 200 g/entry/location
Spacing : 30 × 10 cm	Season: kharif, rabi, rice fallow and summer irrigated

Features of the proposed cultures

Sl. No	Culture	Parentage	Grain yield (kg/ha)	Duration (days)	Yield increase over check (%)	Special features
1.	COGG 13-19 (R)	CO 6 x COGG 912	1012	60-65	11.82 (CO 8)	High yield, MYMV tolerant and Shiny green seeds
2.	ADGG 13-009 (R)	Mutant of CO7	613	68-73	16.30 (ADT 3)	High yield and MYMV tolerant
3.	VMGG 012-005 (R)	VRM (Gg) 1 x Pusa bold	1045	60-65	19.7 (CO 8)	Early and MYMV resistant
4.	TMGG 11-035 (R)	COGG 936 x CO 6	1139	60-65	34.7 (CO 7)	Early and MYMV resistant
5.	AGG 35 (N)	ADG 2080 x VGG 112	801	62-65	12.5 (VBN 3)	High yield and tolerant to MYMV and leaf curl virus
6.	COGG 13-39 (N)	CO 6 x SML 668	990	60-65	11.82 (CO 8)	Bold (100 seed wt.:5.0 to 5.5 g) and shiny seeds moderately resistant to MYMV
7.	COGG 13-32 (N)	CO(Gg) 7 x Annur 2	1002	60-65	12.3 9 (CO 8)	High yield and moderately resistant to MYMV
8.	VGG 15-013 (N)	VBN (Gg)2 x ML 1451	1064	65-70	15.65 (VBN 3)	High yield and MYMV resistance
9.	VGG 15-029 (N)	VBN (Gg)2 x IPM 409-4	1289	60-65	40.10 (VBN 3)	High yield, Synchronous maturity and MYMV resistance

10.	VGG 15-030 (N)	VBN (Gg)2 x IPM 409-4	1101	60-65	19.68 (VBN 3)	High yield, Synchronous maturity and MYMV resistance
11.	VGG 15-038 (N)	VBN (Gg)3 x ML 1451	1151	58-60	25.10 (VBN 3)	Bold seed, Synchronous maturity and MYMV resistance

Checks		VBN 3, CO 8 and ADT 3 (Rice fallow)
Locations	(Kharif) Jun-Jul	Vamban, Coimbatore, Paiyur, Madurai, Virinjipuram and Killikulam
	Rabi (Sep-Oct)	Coimbatore, Vamban, Aruppukkotai, Kovilpatti, Madurai, Chettinad and Tindivanam
	Rice fallow (Jan – Feb)	Aduthurai, SWMRI Thanjavur and Killikulam
	Summer Irrigated (Feb – Mar)	Aduthurai, Thanjavur, Pattukkottai, Vamban, Coimbaore and KVK Needamangalam

Note: Artificial screening for the following pests and diseases will be carried out by NPRC, Vamban and Dept. of Pulses, Coimbatore.

Name of the centre	Pests	Diseases
NPRC, Vamban	Pod borer and white fly	MYMV, LCV, Powdery mildew, root rot
Dept of Pulses, Coimbatore	Pod borer and white fly	MYMV, LCV, Powdery mildew, root rot

5. Multilocation Trial – Cowpea

Design : RBD
Plot size : 4 × 3 m^2
Spacing : 45 × 15 cm
No. of replications : Four
Seed Quantity : 250 g/entry/location
Season: kharif, rabi

Features of the proposed culture

S. No	Cultures	Parentage	Grain yield (kg/ha)	Duration (days)	Yield increase over check (%) (Vamban 1)	Special features
1.	VCP 12-024 (R)	CO(Cp)7 x VBN 1	1780	75-80	32.6	High yield and preferable seed colour
2.	VCP 12-016 (R)	Vamban 1 x VCP 10-001	1970	75-80	46.8	High yield and preferable grain quality
3.	VCP 13-001 (N)	CO (CP) 7 x Vamban 1	1542	75-80	19.26	High yield and brown seed colour

4.	VCP 12-005 (N)	Vamban 1 x VCP 23	1466	70-75	13.34	High yield and brown seed colour

Checks	Vamban 1(C) and CO(CP)7	
Locations	Kharif (Jul-Aug)	Vamban, Coimbatore, Paiyur, Madurai, Killikulam and Virinjipuram
	Rabi (Sep-Oct)	Coimbatore, Vamban, Aruppukottai, Kovilpatti, Madurai, Perambalur and Trichy

Note: Artificial screening for the following pests and diseases will be carried out by NPRC, Vamban and Dept. of Pulses, Coimbatore.

Name of the centre	Pests	Diseases
NPRC, Vamban	Aphids, pod borer	BCMV, root rot and rust
Dept of Pulses, Coimbatore	Aphids, pod borer	BCMV, root rot and rust

6. Multilocation Trial – Soybean

Design : RBD
Plot size : 4 × 1.8 m^2
Spacing : 45 × 20 cm
No. of replications : Four
Seed Quantity : 250 g/entry/location
Season: kharif

Features of the proposed culture

S. No	Cultures	Parentage	Grain yield (kg/ha)	Yield increase over check (DSb 21) (%)	Special features
1.	CSB 10112	Co (Soy) 3 x Bragg	1456	15.3 (DSb 21)	High yield and photo insensitive
2.	CSB 10084	Co (Soy) 3 x AGS 27	1543	15.9 (DSb 21)	High yield and photo insensitive
Checks		DSb 21(C), JS 335(C), CO SOY 3(C)			
Locations		Vaigaidam, Yethapur, Paiyur, Coimbatore and Bhavanisagar			

Important Dates in conduction of MLT and ART

Activities	Season	Last date for receipts	Date of Despatch
Seed material of the proposed ART entries at Vamban	Kharif	31.05.2017	15.06.2017
	Rabi	15.08.2017	05.09.2017
Seed material of the proposed MLT entries at Vamban	Kharif	31.05.2017	05.06.2017
	Rabi	15.08.2017	05.09.2017
	Rice fallow	30.11.2017	05.12.2017
	Summer Irrigated	30.12.2017	05.02.2018
Sowing report at Vamban	Kharif	30.07.2017	-
	Rabi	30.10.2017	
	Rice fallow	31.01.2018	
	Summer Irrigated	31.03.2018	
Visit of MLT/monitoring teams	Kharif	Sep. 2017	-
	Rabi	Dec. 2017	
	Rice fallow	Feb. 2018	

	Summer Irrigated	May. 2018	
	Rabi	Dec. 2017	
Date for receiving the trials results at Vamban for compilation	Kharif	15.12.2017	-
	Rabi	28.02.2018	
	Rice fallow	15.04.2018	
	Summer Irrigated	30.06.2018	

Monitoring team to visit MLT 2017-18

Scientist	Crop	Season	Centres
Dr. J.R. Kannan Bapu, CBE Dr. S. Lakshmi Narayanan, Vamban Dr. A.Thangahemavathy, CBE	Redgram	Kharif 2017	Vamban, Coimbatore Virinjipuram,Paiyur, Melalathur,Yethapur
Dr. N.Manivannan, CBE Dr. P.Jayamani, CBE Dr.A.Mahalingam, Vamban	Blackgram Greengram	Kharif 2017	Vamban, Coimbatore, Paiyur, Madurai, Killikulam, Virinjipuram
		Rabi 2017-18	Vamban, Coimbatore, Aruppukkottai, Madurai, Kovilpatti, Tindivanam Chettinad
Dr. N.Manivannan, Vamban Dr.K.Iyanar, TRRI Dr.Shoba, Killikulam	Blackgram Greengram	Rice fallow	Aduthurai, Thanjavur, Killikulam
		Summer irrigated	Aduthurai, Thanjavur, Vamban, Coimbatore KVK, Needamangalam
Dr. N.Manivannan, Vamban Dr.P.Anantharaju, CBE Dr.K.Thangaraj, MDU	Cowpea	Kharif 2017	Vamban, Paiyur, Madurai, Killikulam, Virinjipuram
		Rabi 2017-18	Vamban, Coimbatore, Aruppukkottai, Kovilpatti, Madurai, Veppanthattai
Dr.Sudhagar Dr.J.R.Kannanbapu	Soybean	Kharif 2017	Vaigai dam, Yethapur, Paiyur, Coimbatore, Bavanisagar

b. Research Projects on Pulses

Crop	Centre	URP	AICRP	EFP	Total
	Vamban	2	1	-	3
	Pulses, Coimbatore	3	1	-	4
Redgram	ARS,Virinjipuram	1	-	-	1
	NPRC, Vamban	2	1	-	3
	Pulses, Coimbatore	1	1	-	2
	ARS, Virinjipuram	1	-	-	1
	TRRI, Aduthurai	3	1	-	4
	SWMRI, Thanjavur	1	-	-	1
	AC&RI, Killikulam	1	-	-	1
	ARS, Kovilpatti	1	-	-	1
	AC&RI, Eachankottai	1	-	-	1
	CPMB, Coimbatore	1	-	-	1
	AC&RI, Madurai	1	-	1	2
Blackgram	ARS, Pattukkottai	1	-	-	1
	NPRC, Vamban	1	-	-	1
	Pulses, Coimbatore	1	-	-	1

	ARS, Virinjipuram	1	-	1	2
	TRRI, Aduthurai	1	-	-	1
	ARS, Bhavanisagar	1	-	-	1
	RRS, Tirur	1	-	-	1
	CPMB, Coimbatore		-	2	2
Greengram	AC&RI, Killikulam		-	1	1
	NPRC, Vamban	1	-	-	1
	Pulses, Coimbatore	1	-	-	1
Cowpea	AC&RI, Madurai	1	-	-	1
	Pulses, Coimbatore	1	1	-	2
Soybean	CPMB, Coimbatore		-	1	1
Chickpea	Pulses, Coimbatore	1	1	-	2
Mochai	RRS, Paiyur	1	-	-	1
Horsegram	RRS, Paiyur	1	-	-	1
	Total	**33**	**7**	**6**	**46**

URP: University Research Project AICRP: ICAR funded AICRP projects EFP: Externally funded projects

c. Remarks on the ongoing university research subprojects/AICRP/Externally funded projects

Sl. No.	Project No. and Title	Remarks
UNIVERSITY RESEARCH SUB PROJECTS		
REDGRAM		
1.	CPBG/VMB/PBG/RGR/2012/002 Evolution of high yielding redgram genotype with pest and disease resistance April 2012 to March 2017 Dr. S. Lakshmi Narayanan Assistant Professor (PBG)	May be closed and a new project may be proposed with similar objectives
2.	CPBG/VMB/PBG/RGR/2015/002 Collection, maintenance and evaluation of germplasm in redgram October 2015 to September 2020 Dr. S. Lakshmi Narayanan Assistant Professor (PBG)	May be continued. Durable resistant donors are to be identified for SMD & pod borers by involving protection scientists
3.	CPBG/CBE/PBG/RGR/2014/002 Evolution of high yielding short duration Redgram varieties through recombination breeding October 2014 to September 2017 Dr. J. R. Kannan Bapu Professor and Head Dr. A. Thanga Hemavathy Assistant Professor (PBG)	May be continued Short duration redgram suitable for intercropping with millets under rainfed situations and groundnut under irrigated situations may be developed.

Sl. No.	Project No. and Title	Remarks
4.	CPBG/CBE/PBG/RGR/2014/001 Evolution of high yielding medium duration Redgram varieties through recombination breeding October 2014 to September 2017 Dr. A. Thanga Hemavathy Assistant Professor (PBG) Dr. J. R. Kannan Bapu Professor and Head	May be continued. Varieties suitable for vegetable pod and grain may be given priority during selection.
5.	CPBG/CBE/PBG/RGR/2014/003 Development of high yielding short and medium duration Redgram hybrids using CGMS system October 2014 to September 2017 Dr. A. Thanga Hemavathy Assistant Professor (PBG) Dr. J. R. Kannan Bapu Professor and Head	May be continued. Hybrids with 20% higher yield than CORG 7/LRG 41 need to be indentified.
6.	CPBG/VIJ/PBG/RGR/2016/New Development of high yielding long duration redgram suitable for rainfed tract of Tamil Nadu June 2016 to April 2019 Dr. A. Gopikrishnan Assistant professor	Project proposal may be sent and project number may be obtained. Long duration red gram suitable for rainfed transplanting may be developed.
BLACKGRAM		
7.	CPBG/VMB/PBG/BGR/2016/001 Evolution of high yielding MYMV resistant blackgram (*Vigna mungo* (L.) Wilczek) genotypes and maintenance of germplasm. Jul 2016 to Jun 2021 Dr. N. Manivannan Professor and Head	May be continued. Varieties with desirable growth habits suited for summer irrigated situation may be developed.
8.	CPBG/CBE/PBG/BGR/2016/001 Evolution of blackgram varieties with yellow mosaic disease resistance. October 2016 to November 2021 Dr. P. Jayamani Professor (PBG)	May be continued. Replacement for Co6 may be identified
9.	CPBG/MDU/PBG/BGR/2015/002 Development of high yielding YMV disease resistant variety in black gram. (*Vigna mungo* (L). Hepper Oct 2015 to Sep 2018 Dr. G. Anand Assistant Professor (PBG)	May be continued
10.	CPBG/VIJ/PBG/BGR/2013/001 Evolution of Yellow Mosaic Virus resistant blackgram variety and identification of blackgram genotype with enhanced iron and zinc	May be closed and a new project may be proposed

Sl. No.	Project No. and Title	Remarks
	January 2013 to December 2015 Dr.M.Pandiyan, Professor and Head	
11.	CPBG/ADT/PBG/BGR/2013/001 Development of blackgram cultures suitable for rice fallow condition of Cauvery Delta Zone April 2013 to March 2018 Dr. K. Iyyanar Asst. Professor (PBG)	May be continued
12.	CPBG/TNJ/PBG/BGR/2013/001 Development of blackgram cultures suitable for rice follow condition of Cauvery Delta Zone April 2013 to March 2018 Dr.S. Santha Assistant Professor (PBG) Check the title and number	May be continued. Segregating generation form Vamban may be obtained and screened
13.	CPBG/KKM/PBG/BGR/2012/001 Development of high yielding black gram variety suitable for irrigated and rice fallow of southern districts of Tamil Nadu April 2013 to September 2019 Dr. D. Shoba, Asst. Professor (PB&G)	May be continued
14.	CPBG/VMB/PBG/BSP/2015/002 Maintenance breeding and breeder seed production in greengram, blackgram, Redgram, Cowpea and Groundnut varieties Sep 2015 to Aug 2019 Dr. A. Mahalingam, Assistant Professor (PBG)	May be continued
15.	CPBG/ADT/PBG/BSP/2013/001 Maintenance and Production of Nucleus seeds in Black gram and Greengram varieties October 2013 to September 2016 Dr. K. Iyyanar, Asst. Prof. (PBG)	May be closed and a new project may be proposed
16.	CPBG/PKT/PBG/BGR/2016/001 Breeder Seed Production in Pulses and Groundnut April 2016 to March 2021 Dr. A. Bharathi, Assistant Professor (PBG)	May be continued
17.	CPBG/KPT/PBG/BGR/2016/NEW Development of high yielding, short duration Yellow Mosaic Virus disease resistant blackgram (*Vigna mungo* (L.). Hepper) variety suitable for rainfed tracts of Southern districts of Tamil Nadu'' October 2016 to September 2020 Dr. E. Murugan Professor andHead	May be continued

Sl. No.	Project No. and Title	Remarks
18.	CPBG/EKT/PBG/RIC/2016/001 Development of high yielding blackgram varieties through breeding approaches for new Cauvery Delta Zone April 2017 to March 2019 Dr. M. Sakila Asst. Prof. (PBG)	May be continued. Segregating progenies from Vamban are to be obtained and checked for suitability in New Delta area.
19.	CPBG/TNJ/PBG/BSP/2013/001 Breeder seed Production in paddy and Pulses April 2015 to March 2018 Dr.S. Santha Assistant Professor (PBG)	May be continued
20.	CPMB/CBE/PBT/BGR/2015/001 Identification of MYMV resistant donors in black gram through agro inoculation and validation of linked marker(s) April 2015 to March 2018 Dr. M. Sudha, Assistant Professor (Biotech.)	May be continued
GREENGRAM		
21.	CPBG/VMB/PBG/GGR/2016/001 Evolution of high yielding and MYMV resistant greengram (*Vigna radiata* (L.) Wilczek) genotypes with synchronized maturity and maintenance of its germplasm July 2016 to June 2021 Dr. A. Mahalingam, Assistant Professor (PBG)	May be continued. Durable resistant donor for MYMV need to be identified by involving protection scientists
22.	CPBG/CBE/PBG/GGR/2016/001 Evolution of greengram varieties with synchronized maturity and resistance to yellow mosaic disease October 2016 to November 2021 Dr. P. Jayamani Professor (PBG)	May be continued
23.	CPBG/VIJ/PBG/GGR/2013/001 Evolution and evaluation of greengram genotypes for developing Mungbean Yellow Mosaic Virus resistance January 2013 to December 2015 Dr. M. Pandiyan, Professor and Head (PB&G)	May be closed and a new project may be proposed
24.	CPBG/ADT/PBG/GGR/2013/001 Evolving high yielding, short duration greengram (*Vigna radiata* (L.) Wilczek) varieties suitable for Rice fallow / Summer irrigated cultivation in Cauvery Delta Zone of Tamil Nadu November 2013 to October 2016 Dr. K.Iyanar Assistant Professor (PBG)	May be closed and a new project may be proposed with similar objectives. Segregating progenies and advanced cultures from Vamban and Vrinjipuram are to be screened in Tanjore, Nagapattinam districts under rice fallow.

Sl. No.	Project No. and Title	Remarks
25.	CPBG/TKM/PBG/GGR/2010/001 Evolving early maturing, high yielding green gram variety with resistance to Yellow Mosaic Virus October 2010 to September 2015 Dr. A. Sheeba Assistant Professor (PBG)	Completion report may be sent
26.	CPBG/BSR/PBG/GGR/2016/001 Breeder seed production in green gram and black gram varieties and evaluation of pre released cultures under multi locational testing June 2016 to May 2021 Dr. D. Kavithamani, Assistant Professor (PB&G)	May be continued. Breeder seed indent in green gram need to be achieved without any shortfall.
COWPEA		
27.	CPBG/VMB/PBG/COP/2015/003 Evolution of high yielding genotypes and germplasm maintenance in cowpea September 2015 to August 2020 Dr. N. Manivannan Professor (PBG) and Head	May be continued
28.	CPBG/CBE/PBG/COP/001 Development of high yielding cowpea (*Vigna unguiculata* (L.) Walp.) Varieties superior than CO (CP) 7 May 2016 to April 2021 P. Anantharaju Assistant Professor (PBG)	May be continued
29.	CPBG/MDU/PBG/COP/2015/001 Development of short duration, determinate cowpea (*Vigna unguiculata* L.) variety suitable for southern districts of Tamil Nadu October 2015 to September 2018 Dr. K. Thangaraj Assistant Professor (PBG)	May be continued. Hydridization works must be intensified.
	SOYBEAN	
30.	CPBG/CBE/PBG/SYB/2016/New Evolution of soybean varieties suited for diverse cropping conditions June 2016 to May 2019 Dr. R. Sudhagar, Asst. Professor (PB&G)	May be continued. Vegetable soybean need to be developed.
CHICKPEA		
31.	CPBG/CBE/PBG/CHP/001 Evolution of high yielding chickpea (*Cicer arietinum* L.) Varieties for biotic and abiotic stresses for Tamil Nadu zone. Sept 2015 to August 2020 Dr.P.Anantharaju Asst.Prof.(PB&G)	May be continued. Promising material from ICRISAT is to be studied. Hybridization need to be intensified. Variety Co4 need to be replaced.

Sl. No.	Project No. and Title	Remarks
MOCHAI		
32.	CPBG/PYR/PBG/MOC/2016/001 Evolution of short duration high yielding vegetable pea types of mochai August 2014 to July 2017 Dr.P.Suthamathi Associate Professor (PB&G)	May be continued
HORSEGRAM		
33.	CPBG/PAI/PBG/HGR/2012/001 Evolution of short duration high yielding horsegram genotypes suited to the rainfed areas of Tamil Nadu May 2012 to May 2017 Dr. P. Suthamathi Assoc. Professor (PB& G)	May be continued. A new variety with high yield potential and suitable for intercropping is to be developed.
AICRP PROJECTS		
REDGRAM		
34.	AICRP/PBG/VBN/PIP/011 Evaluation and utilization of red gram genotypes under AICPIP January 2015 to December 2019 Dr. S. Lakshmi Narayanan Assistant Professor (PBG)	May be continued
35.	AICRP/PBG/CBE/PIP/010 AICRP on Pigeonpea -Evaluation of Redgram genotypes under All India Co-ordinated Pulses Improvement Project January 2015 to December 2019 Dr. J. R. Kannan Bapu Professor and Head Dr. A. Thanga Hemavathy Assistant Professor (PBG)	May be continued
BLACKGRAM AND GREENGRAM		
36.	AICRP/VBN/CBE/MUL/013 AICRP on MULLaRP January 2015 to December 2019 Dr. N. Manivannan Professor and Head Dr. A. Mahalingam Assistant Professor (PBG)	May be continued
37.	AICRP/PBG/CBE/MUL/014 AICRP on MULLaRP January 2015 to December 2019 Dr. P. Jayamani Professor (PBG) Dept. of Pulses	May be continued
38.	AICRP/PBG/ADT/MUL/015 January 2015 to December 2019 Dr. K. Iyanar, Assistant Professor (PBG)	May be continued

Sl. No.	Project No. and Title	Remarks
SOYBEAN		
39.	AICRP/PBG/SOY/016 AICRP on Soybean trails January 2015 to December 2019 Dr. R. Sudhagar, Assistant Professor (PBG)	May be continued
CHICKPEA		
40.	AICRP / PBG / CHP / 012 AICRP on Chickpea April 2015 to December 2019 Dr.P.Anantharaju Assistant Professor (PBG)	May be continued
EXTERNALLY FUNDED PROJECTS		
BLACKGRAM		
41.	BRNS/CPBG/MDU/PBG/2012-R002 Development of an ideal ideotype for enhanced productivity and synchronized maturity through induced mutagenesis in blackgram March 2012 to March 2016 Dr. C. Vanniarajan Professor and Head	May be closed
GREENGRAM		
42.	ICAR – EM/CPBG/TRY/PBG/2016/R005 Development of photo-thermo insensitive and yellow mosaic resistant pre-breeding lines in Mungbean (*V. radiata* L.) and Urdbean (*V. mungo* L.) January 2016 to March 2017 Dr. S.Chitra Assistant Professor (PBG)	May be closed and completion report may be sent
43.	GOI-SERB/VRM/PUL/2013/R001 Development and validation of SNP marker platform for Vigna complexes to map the MYMV and bruchids resistance November 2013 to October 2017 Dr. M. Pandiyan , Professor (PB&G) & Head	May be continued
44.	DST/CPMB/CBE/DPB/2016/R023 Understanding molecular basis of resistance against YMV in mungbean through transcriptome profiling May 2016 to May 2019 Dr. M. Sudha, Assistant Professor (Biotech)	May be continued
45.	DBT/CPMB/CBE/PMB/2012/R002 Molecular marker assisted selection and Identifying Resistance Gene Analogs (RGAs) associated with resistance to MYMV in mungbean (*Vigna radiata* L.	May be continued

Sl. No.	Project No. and Title	Remarks
	Wilzeck) and rice bean (*V. umbellata*) interspecific crosses and identification of AFLP markers linked to MYMV resistance profiling May 2012 to May 2017 Dr. M. Sudha, Assistant Professor (Biotech)	
46.	CPMB&B-PMB-13-001 Marker assisted selection for *Phytophthora* and powdery mildew resistance and effective nodulation in soy bean (*Glycine max* L. Merr.) May 2013 to May 2016 Dr. Ramalingam Professor (Biotechnology) and Head Dept. of CPMB&B	May be continued

d. General Remarks

Hybridizations should be effected by involving elite donors for specific objective in the main stations and the materials are to be shared among the other pulses breeders of all the stations.

- Planned crosses and sharing of breeding materials may be done across pulse breeders of different research stations (**Action:** NPRC, Vamban and Dept. of Pulses, TNAU, Coimbatore and ARS, Virinjipuram).
- Research may be concentrated in horsegram identifying ideal genotype to prevent disease infection arising out of nipping. (**Action:** RRS, Paiyur)
- MYMV resistant greengram variety may be developed (**Action:** NPRC, Vamban and Dept. of Pulses, TNAU, Coimbatore and ARS, Virinjipuram).
- Theme 1 and 2 (short duration and long duration) of redgram may be combined for the development of high yielding redgram genotypes with SMD and wilt resistance.
- Theme 3 and 4 (blackgram and rice fallow) may be combined as both involve developing varieties for MVMV resistance
- In Germplasm characterisation, core collections may be developed and duplicate germplasm may be avoided before characterisation (Action: Dept. of PGR, TNAU, Coimbatore).

e. Action plan (2016 – 2019)

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

Action plan for 2016-2019 on the identified themes

Theme No 1	**Development of Redgram Varieties for Enhanced Yield With Resistance to Wilt and SMD**					
Theme Leader	**Dr. J. R. Kannan Bapu, Professor and Head, Dept. of Pulses, TNAU, Coimbatore**					
S.No	**Activity**	**Name of the scientist and centre**	**2016-17**	**2017-18**	**2018-19**	**Deliverables/expected out come**
1.	Field and Artificial screening for SMD	**Coimbatore** Dr.E.Rajeswari **Vamban** Dr.V.K.Satya	Resistant donor identified	Resistant donor Identified	Resistant donor identified	Promising resistant donors
2	Field and Artificial screening for Wilt	**Coimbatore** Dr.E.Rajeswari **Vamban** Dr.V.K.Satya	Resistant donor identified	Resistant donor Identified	Resistant donor identified	Promising resistant donors
3	Developing high yielding genotypes resistant to SMD and Wilt	**Coimbatore** Dr.J.R.Kannan Bapu Dr.A.Thangahemavathy **Vamban** Dr.S.Lakshmi Narayanan **Virinjipuram** Dr.A.Gopikrishnan **Paiyur** Dr.M.Dhandapani	Promising high yielding long duration varieties crossed with available SMD and Wilt resistant donors	• Promising high yielding long duration varieties crossed with identified SMD and Wilt resistant donors • Identification of true F_1s and selection	Selection of Segregants with long duration high yield and resistant to SMD and Wilt in F_2 generation and forwarded to next generation	Promising long duration segregants for SMD and Wilt resistance

Theme No 2	Development of Short Duration, High Yielding Greengram and Blackgram Varieties with resistance to MYMV and identifying varieties suitable for rice fallow condition					
Theme Leader	**Dr.N.Manivannan, Professor and Head, NPRC, Vamban**					
S.No	**Activity**	**Name of the scientist and centre**	**2016-17**	**2017-18**	**2018-19**	**Deliverables/expected out come**
1	Artificial screening for MYMV	**Vamban** Dr.V.K.Satya **Coimbatore** Dr.T.K.S.Latha Dr. M. Sudha	Resistant donor identified	Resistant donor identified	Resistant donor identified	Promising resistant donors
2	Developing high yielding early maturing blackgram and greengram genotypes tolerant to MYMV	**Vamban** Dr.N.Manivannan Dr.A.Mahallingam **Coimbatore** Dr.P.Jayamani **Virinjipuram** Dr.M.Pandiyan **Kovilpatti** Dr. E. Murugan **Madurai** Dr. G. Anand **Thanjavur** Dr. M. Sakila Dr. L. Suba	• Promising high yielding short duration varieties crossed with MVMV resistant donors • Hybridisation and evaluation of F_1s	• Identification of Transgressive segregants with earliness and MYMV resistance in F_2 and F_3 generations	• Identification of promising F_4 and F_5 progenies with earliness and MYMV resistance and forwarded to next generation	Promising genotypes with earliness and MYMV resistance
3	Developing high yielding blackgram and greengram genotypes suitable for rice fallow condition and tolerant to MYMV	**Aduthurai** Dr.K.Iyanar **Killikulam** Dr.D.Shoba	• Hybridisation among diverse genotypes of blackgram and greengram using MYMV resistant donors	• Selection of high yielding MYMV resistant segregants under rice fallow	• Selection of high yielding MYMV resistant segregants under rice fallow condition in F_3 generation	Promising segregants suited to rice fallow condition

			• Raising of F_1s under rice fallow condition	condition in F_2 generation		

Theme No 3	**Genetic Improvement of Cowpea for Yield and Quality**					
Theme Leader	**Dr.K.Thangaraj, Assistant Professor, AC&RI, Madurai**					
S.No	**Activity**	**Name of the scientist and centre**	**2016-17**	**2017-18**	**2018-19**	**Deliverables/expected out come**
1	Developing high yielding genotypes in cowpea	**Madurai** Dr.K.Thangaraj **Vamban** Dr.N.Manivannan **Coimbatore** Dr.P.Anantharaju	• Hybridisation among the high yielding and Aphid tolerance genotypes of cowpea • Raising F_1s	• Selection of promising segregants in F_2 and F_3 based on yield and quality	Selection of high yielding segregants for yield and quality in F_4 and F_5	Promising genotypes with high yield, bold seeded and high protein content

Theme No 4	**Genetic Improvement of Chickpea for Yield with resistance to dry root rot**					
Theme Leader	**Dr.P.Anantharaju, Assistant Professor, AC&RI, Madurai**					
S.No	**Activity**	**Name of the scientist and centre**	**2016-17**	**2017-18**	**2018-19**	**Deliverables/expected out come**
1	Artificial screening for Dry root rot	**Coimbatore** Dr. S. Vanitha	• Identification of resistant donor	• Identification of resistant donor	• Identification of resistant donor	Promising resistant donors
2	Developing high yielding genotypes in chickpea	**Coimbatore** Dr.P.Anantharaju	• Hybridisation involving high yielding genotypes agronomically superior and	• Selection of promising segregants in F_2 based on yield and	• Selection of promising segregants in F_3 based on yield and resistance to	Promising segregants with high yield and resistance to dry root rot

			resistant donors of Chickpea • Raising F_1s	resistance to dry root rot and forward to next generation	dry root rot and forward to next generation	

Theme No 5	**Evolution of High Yielding Photo-insensitive Mochai Varieties**					
Theme Leader	**Dr. P. Suthamathi, Associate Professor, RRS, Paiyur**					
S.No	**Activity**	**Name of the scientist and centre**	**2016-17**	**2017-18**	**2018-19**	**Deliverables/expected out come**
1	Developing high yielding photo-insensitive genotypes in Mochai	**Paiyur** Dr.P.Suthamathi,	• Hybridisation among photo insensitive and high yielding genotypes	• Raising F_1s	• Selection of promising segregants in F_2 based on yield and photo-insensitivity	Promising segregants with high yield and photo-insensitivity

Theme No 6	**Genetic Improvement of Horsegram for Yield**					
Theme Leader	**Dr.P.Suthamathi, Associate Professor, RRS, Paiyur**					
S.No	**Activity**	**Name of the scientist and centre**	**2016-17**	**2017-18**	**2018-19**	**Deliverables/expected out come**
1	Developing high yielding genotypes in horsegram	**Paiyur** Dr.P.Suthamathi	• Hybridisation among the photo insensitive and high yielding genotypes of horsegram	• Raising F_1s	Selection of promising segregants in F_2 based on yield, photo insensitivity and protein content and forwarding to next generation	Promising segregants with high yield, high protein content and photo insensitivity

Theme No 7	Evolution of High Yielding Soybean Varieties suited for Intercropping and Vegetable Purpose					
Theme Leader	**Dr. R. Sudhagar, Assistant Professor, Dept. of Pulses, Coimbatore**					
S.No	**Activity**	**Name of the scientist and centre**	**2016-17**	**2017-18**	**2018-19**	**Deliverables/expected out come**
1	Developing high yielding genotypes in soybean suitable for intercropping and vegetable purpose	Coimbatore Dr.R.Sudhagar	• Hybridisation of high yielding agronomically superior genotypes of soybean involving vegetable types from AVRDC, Taiwan. • Raising F_1s	• Selection of promising segregants in F_2 and F_3 based on yield and vegetable types	• Selection of promising segregants in F_4 and F_5 based on yield and vegetable types	Promising genotypes of vegetable types of soybean with high yield

Theme No 8	Identification of Clusterbean Varieties suitable for Tamil Nadu					
Theme Leader	**Dr. C.Vanniarajan, Professor, AC&RI, Madurai**					
S.No	**Activity**	**Name of the scientist and centre**	**2016-17**	**2017-18**	**2018-19**	**Deliverables/expected out come**
1	Developing high yielding genotypes in cluster bean	**Madurai** Dr.C.Vanniarajan	• Hybridisation involving agronomically superior genotypes of cluster bean with guar varieties identified for gum purpose. • Evaluation of F_1s	• Selection of promising segregants in F_2 and F_3 based on yield and gum quality	Selection of high yielding segregants for yield and gum quality in F_4 and F_5	Promising genotypes with high yield and gum quality

Theme No 9	Characterisation and Documentation of Germplasm using Crop Specific Descriptors					
S.No	**Activity**	**Name of the scientist and centre**	**2016-17**	**2017-18**	**2018-19**	**Deliverables/ expected out come**
1.	Redgram	Dr. J. R. Kannan Bapu, Dr. A.Thangahemavathy	Characterisation of 100 accessions based on 21 crop specific descriptors	Characterisation of 100 accessions based on 21 crop specific descriptors	Cataloguing and documentation	Identification of genotypes for different traits
2.	Blackgram and greengram	Dr. J. R. Kannan Bapu, Dr.N.Manivannan Dr. P. Jayamani Dr. A. Mahalingam	Characterisation of 100 accessions based on 24 crop specific descriptors	Characterisation of 100 accessions based on 24 crop specific descriptors	Cataloguing and documentation	Identification of genotypes for different traits
3.	Cowpea	Dr.N.Manivannan Dr.K.Thangaraj	Characterisation of 100 accessions based on 21 crop specific descriptors	Characterisation of 100 accessions based on 21 crop specific descriptors	Cataloguing and documentation	Identification of genotypes for different traits
4.	Chickpea	Dr. P. Anantharaju	Characterisation of 100 accessions based on 20 crop specific descriptors	Characterisation of 100 accessions based on 20 crop specific descriptors	Cataloguing and documentation	Identification of genotypes for different traits
5.	Soybean	Dr. R. Sudhagar	Characterisation of 100 accessions based on 22 crop specific descriptors	Characterisation of 100 accessions based on 22 crop specific descriptors	Cataloguing and documentation	Identification of genotypes for different traits
6.	Horsegram	Dr. P. Suthamathi Dr. M. Dhandapani	Characterisation of 100 accessions based on 19 crop specific descriptors	Characterisation of 100 accessions based on 19 crop specific descriptors	Cataloguing and documentation	Identification of genotypes for different traits
7.	Mochai	Dr. P. Suthamathi Dr. M. Dhandapani	Characterisation of 100 accessions based on 20 crop specific descriptors	Characterisation of 100 accessions based on 20 crop specific descriptors	Cataloguing and documentation	Identification of genotypes for different traits

Work load for individual scientists

Sl. No	Scientists	THEMES 1			THEMES 2			THEMES 3	THEMES 4	
		Development of Redgram Varieties for Enhanced Yield With Resistance to Wilt and SMD			Development of Short Duration, High Yielding Greengram and Blackgram Varieties with resistance to MYMV and identifying varieties suitable for rice fallow condition			Genetic Improvement of Cowpea for Yield and Quality	Genetic Improvement of Chickpea for Yield with resistance to dry root rot	
		Field and Artificial screening for SMD	Field and Artificial screening for Wilt	Developing high yielding genotypes resistant to SMD and Wilt	Artificial screening for MYMV	Developing high yielding early maturing blackgram and greengram genotypes tolerant to MYMV	Developing high yielding blackgram and greengram genotypes suitable for rice fallow condition and tolerant to MYMV	Developing high yielding genotypes in cowpea	Artificial screening for Dry root rot	Developing high yielding genotypes in chickpea
1	Dr.J.R.Kannnan Bapu			√						
2	Dr.A.Thangahemavathy			√						
3	Dr.E.Rajeswari	√	√							
4	Dr.N.Manivannan					√		√		
5	Dr.S.Lakshmi Narayanan			√						
6	Dr.V.K.Satya	√	√		√					
7	Dr.M.Pandiyan					√				
8	Dr.A.Gopikrishnan			√						
9	Dr.M.Dhandapani			√						
10	Dr.A.Mahallingam					√				
11	Dr.P.Jayamani					√				
12	Dr.T.K.S.Latha				√					
13	Dr.K.Iyanar						√			
14	Dr.D.Shoba						√			
15	Dr E.Murugan					√				
16	Dr. G. Anand					√				
17	Dr L.Subha					√				
18	Dr. M. Sakila					√				
19	Dr. M. Sudha				√					
20	Dr.K.Thangaraj							√		

21	Dr.P.Anantharaju							√		√
22	Dr. S. Vanitha								√	
23	Dr.P.Suthamathi									
24	Dr.R.Sudhagar									
25	Dr.C.Vanniarajan									

Sl. No		THEMES 5	THEMES 6	THEMES 7	THEMES 8	THEMES 9
		Evolution of High Yielding Photo-insensitive Mochai Varieties	Genetic Improvement of Horsegram for Yield	Evolution of High Yielding Soybean Varieties suited for Intercropping and Vegetable Purpose	Identification of Clusterbean Varieties suitable for Tamil Nadu	Characterisation and Documentation of Germplasm using Crop Specific Descriptors
		Developing high yielding photo-insensitive genotypes in Mochai	Developing high yielding genotypes in horsegram	Developing high yielding genotypes in soybean suitable for intercropping and vegetable purpose	Developing high yielding genotypes in cluster bean	Redgram Blackgram Greengram Cowpea Soybean Horsegram Mochai
1	Dr.J.R.Kannnan Bapu					√
2	Dr.A.Thangahemavathy					√
3	Dr.E.Rajeswari					
4	Dr.N.Manivannan					√
5	Dr.S.Lakshmi Narayanan					√
6	Dr.V.K.Satya					
7	Dr.M.Pandiyan					
8	Dr.A.Gopikrishnan					
9	Dr.M.Dhandapani					
10	Dr.A.Mahallingam					√
11	Dr.P.Jayamani					√
12	Dr.T.K.S.Latha					
13	Dr.K.Iyanar					
14	Dr.D.Shoba					
15	Dr E.Murugan					
16	Dr. G. Anand					
17	Dr L.Subha					

18	Dr. M. Sakila					
19	Dr. M. Sudha					
20	Dr.K.Thangaraj					√
21	Dr.P.Anantharaju					√
22	Dr. S. Vanitha					
23	Dr.P.Suthamathi	√	√			√
24	Dr.R.Sudhagar			√		√
25	Dr.C.Vanniarajan				√	

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II. Crop Management

a. Decisions made on OFT

For Adoption

Sprinkler irrigation on different blackgram varieties under summer irrigated condition

The treatment, sprinkler irrigation at 100% PE with ADT 5 or VBN 6 may be recommended for adoption under summer irrigated blackgram cultivation.

For OFT

1. **Conservation tillage and supplemental irrigation for rainfed blackgram**

   The on-farm trial to be continued

   Regarding OFT, scientist of the proposed centre has to give the details on observations to be recorded.

- OFT monitoring has to be done by the proposed scientist.

  Centers:

  Dr. Vallalkannan Asst. Prof (Agronomy) AEC & RI - Kumulur,
  Dr.B.Arthi rani Asst. Prof (Agrl. Meterology)ARS - Kovilpatti
  Dr. N. Satheesh kumar, AP (Agron.) DARS - Chettinad

- **Treatment details:**

  T_1 - Minimum tillage + Crop residue @ 5 t/ha with supplemental irrigation twice at critical stage
  T_2 - Conventional tillage with no supplemental irrigation

  Observations to be recorded

  Plant population/m^2
  Plant height at harvest (cm)
  DMP at harvest (kg/ha)
  Yield Attributes
  Economics
  Water Productivity

2. **Effect of growth regulating substances in improving crop establishment and harvest Index in blackgram and greengram under sodicity**

   Centers: 1. Dr. S. Nithila, Asst. Prof (Crop Physiology) ADAC&RI, Trichy
   2. ARS, Paramakudi
   3. KVK, Sikkal

Treatment details:

T1: Control (without any seed treatment)

T2: Seed treatment with cowpea sprouts extract (2 %) + foliar spray of Panchagavya (1 %) at flower initiation and pod initiation stages

T3: Seed treatment with GA_3 (50 ppm) + foliar spray of Panchagavya (1 %) at flower initiation and pod initiation stages

Variety : Greengram - VBN (Gg) 2
: Blackgram - VBN (Bg) 6

Observations to be recorded:

a) Leaf Area Index at different stages (30, 45 & 60 DAS)
b) Plant height at harvest

c) No of branches at harvest
d) No. of clusters/plant
e) No. of pods/plant
f) No. of seeds /pod
g) 100 seed weight
h) Grain yield
i) Biological yield
j) Harvest index
k) Plant leaf -Na/ K ratio
l) Proline content
m) *Catalase* enzyme activity

3. Evaluation of mechanical sowing with primed seeds intervened with foliar spray on productivity of rainfed horsegram

Centres:

1. RRS, Paiyur

Dr.P.Srimathi, Prof. (SS&T)

Dr.R.Thiyagarajan Asst. Prof.(FM)

2.AC & RI, Killikulam

Dr.B. Venudevan, Asst.Prof (SST)

3. ARS, Bhavanisagar

Dr.K.Malarkodi, Asst. Prof (SST)

Treatment details:

T_1-Control (untreated seed in line sowing)

T_2- Sowing of seed primed with 100 ppm $ZnSO_4$ using seed drill & spraying of 0.5% $ZnSO_4$ at flower initiation.

Variety : Horsegram cv Paiyur 2

Observations to be recorded:

1.Plant stand after 10 days (plant number /square metre)

2.Chlorophyll content (30 and 45 days after sowing)

3. Pod weight / plant (g)

4. Seed weight / plant (g)

5. 100 seed weight (g)

6. Seed yield (kg / ha)

b. Research projects on pulses

Crop	Centre	URP	AICRP	EFP	Total
Agronomy					
	NPRC, Vamban	-	1	-	1
	Pulses, Coimbatore	-	1	-	1
Redgram	RRS, Paiyur	1	-	-	1
Blackgram	NPRC, Vamban	1	1	-	2

	AEC&RI, Kumulur	1	-	-	1
	ARS, Kovilpatti	1	-	-	1
	TRRI, Aduthurai	1	1	-	2
	ARS, Virunjipuram	1	-	-	1
	Pulses, Coimbatore	-	1	-	1
	NPRC, Vamban	-	1	-	1
	Pulses, Coimbatore	1	1	-	2
	ARS, Kovilpatti	2	1	-	3
Greengram	AC&RI, Trichy	1	-	-	1
Soybean	Pulses, Coimbatore	-	1	-	1
Mochai	ARS, Virunjipuram	1	-	-	1
Horsegram	Pulses, Coimbatore	1	-	-	1
Bengalgram	Pulses, Coimbatore	1	-	-	1
Others	AC&RI, Trichy	1	-	-	1
	Total	**14**	**9**	**0**	**23**
Soil Science and Agricultural Chemistry					
	AC&RI, Madurai	1	-	-	1
Redgram	Aruppukkottai	1	-	-	1
Blackgram	DARS, Chetinad	1	-	-	1
Others	Pulses, Coimbatore	1	-	-	1
	Total	**4**	**0**	**0**	**4**
Crop Physiology					
	NPRC, Vamban	2	-	-	2
	Pulses, Coimbatore	1	-	-	1
Blackgram	AC&RI, Trichy	1	-	-	1
	Total	**4**	**0**	**0**	**4**
Biochemistry					
Blackgram	AC&RI, Killikulam	1	-	-	1
Greengram	AC&RI, Echankkottai	1	-	-	1
	Total	**2**	**0**	**0**	**2**
Agricultural Microbiology					
	NPRC, Vamban	1	1	-	2
Redgram	Pulses, Coimbatore	-	1	-	1
	NPRC, Vamban	-	1	-	1
	Pulses, Coimbatore	1	1	-	2
Blackgram	AC&RI, Madurai	1	-	-	1
	NPRC, Vamban	-	1	-	1
	Pulses, Coimbatore	-	1	-	1
Greengram	AC&RI, Killikulam	1	-	-	1
Chickpea	Pulses, Combatore	1	-	-	1
	Total	**5**	**6**	**0**	**11**
Seed Science and Technology					
	NPRC, Vamban	1	-	-	1
Redgram	ARS, Bhavanisagar	1	-	-	1
	NPRC, Vamban	1	-	-	1
Blackgram	Pulses, Coimbatore	1	-	-	1
Greengram	Pulses, Coimbatore	1	-	-	1

	ARS, Bhavanisagar	1	-	-	1
	ARS, Vaigaidam	1	-	-	1
Horsegram	RRS, Paiyur	1	-	-	1
Mocahi	RRS, Paiyur	1	-	-	1
	Total	**9**	**0**	**0**	**9**

c. Remarks on the ongoing university research subprojects/AICRP/Externally funded projects

AGRONOMY

Action Taken on Action Plan Trials

Sl. No.	Project No. and Title	Remarks
Redgram		
1.	**DCM/ CBE/ AGR/ RGR/ 2016/ 001** Evaluation of different redgram based strip intercropping system under rainfed condition (June, 2016 to May, 2019) **TNAU,CBE (Coordinating Centre):** Dr. K. Kalaiselvi, AP (Agron.), Dept. of Pulses Dr. K. Sathiyabama, AP (SS & AC) Dr. R. Sivakumar, AP (CRP)* **RRS, Paiyur:** Dr. C. Sivakumar, Assoc. Prof. (Agron.)* Dr. M. Vijayakumar, AP (SS & AC) Dr. K. Krishna Surendar, AP (CRP)* **ARS, Virinjipuram:**** Dr. P. Sridhar, Professor (Agronomy) Dr. T. Balaji, AP (SS & AC)	• The project to be continued with supplemental irrigation during drought • Small millets may be removed from the treatments • * - *In-lieu of* the scientist transferred, alternate scientist may be identified and necessary approval may be obtained from the Director of Research, TNAU, Coimbatore. (**Action**: P&H, Dept. of CRP, TNAU, CBE & P&H, RRS, Paiyur). • ** - As per the instruction of the Director of Research during the pre-review meet, the project may be restricted to TNAU, Coimbatore and RRS, Paiyur Centres & ARS, Virinjipuram may be eliminated.
Blackgram		
2.	**DCM/KPT/AGR/BGR/2016/001** Integrated Drought Mitigation Technology (IDMT) for blackgram (June, 2016 to May, 2019) **ARS, Kovilpatti (Coordinating Centre):** Dr. S. Subbulakshmi, AP (Agronomy) Dr. V. Sanjiv Kumar, AP (SS&AC)	• The project to be continued with midterm correction in treatments • Placement of pusa hydrogel and time of application should be verified • Weather parameters details should

	Dr.T. Sivakumar, Assoc. Prof. (CRP)*, AC & RI, Madurai. **RRS, Aruppukottai:**** Dr. R. Durai Singh, Professor (Agron.) Dr. B. Bhakiyathu Saliha, AP (SS&AC) Dr. J. Rajkumar, AP (CRP)	be furnished during the cropping period • Time schedule of PPFM spray period must be mentioned. • During severe stress condition, protective irrigation (using boom sprayer/mobile sprinkler) may be adopted and quantity of water applied has to be calculated. • * - *In-lieu of* the scientist transferred, alternate scientist may be identified and necessary approval may be obtained from the Director of Research, TNAU, Coimbatore.(**Action**: P&H, ARS, Kovilpatti) • ** - As per the instruction of the Director of Research during the pre-review meet, the project may be restricted to ARS, Kovilpatti centre and RRS, Aruppukottai may be eliminated.
3.	**DCM/ADT/AGR/BGR/2016/001** Yield maximization in rice fallow blackgram (July, 2016 to June, 2019) **TRRI, Aduthurai (Coordinating Centre):** Dr. C. Umamageswari, AP (Agron.) Dr. K. Krishnaveni, Professor (SS&T)* Dr. K. Vanitha, AP (CRP) Dr. A. P. Mohankumar, AP (FM&P) **KVK, Needamangalam:**** Dr. R. Baskaran, AP (Agron.) **KVK, Sikkal: **** Dr. A. Anuradha, AP (SS&AC) **AC& RI, Killikulam:**** Dr. N. Vadivel, AP (Agron.) Dr. C. Rajababu, AP (CRP) Dr. S. Thambidurai, AP (FM&P) Dr. B. Venudevan, AP (SS&T)	• The project to be continued. • Experiment should be conducted as per the technical program without any deviation • The results of the experiments may be consolidated and presented in next CSM on pulses. • * - *In-lieu of* the scientist transferred, alternate scientist may be identified and necessary approval may be obtained from the Director of Research, TNAU, Coimbatore. (**Action** : Director, TRRI, Aduthurai) • ** - As per the instruction of the Director of Research during the pre-review meet, the project may be restricted to TRRI, Aduthurai centre alone. KVK, Needamangalam, KVK, Sikkal and

		AC&RI, Killikulam centres may be eliminated.
Greengram		
4.	**DCM/CBE/AGR/GGM/2016/001** Evaluation of Best Management Practices (BMP) for greengram under irrigated condition (June, 2016 to May, 2019) **TNAU, CBE (Coordinating Centre):** Dr. M. Senthivelu, AP (Agron.) Dr. A. Surendra Kumar, Professor (FM&P) Dr. R. Sivakumar, AP (CRP)* Dr. S. Kavitha, AP (SS&T) **NPRC, Vamban:** Dr. S. Marimuthu, AP (Agron.) Dr. C. Vanitha, AP (SS&T) Dr. V. Babu Rajendra Prasad, AP (CRP) **RRS, Paiyur: **** Dr. P. Ayyadurai, AP (Agron.) Dr. P. Srimathi, Professor (SS&T) Dr. R. Thiyagarajan, AP (FM&P) Dr. K. Krishna Surendar, AP (CRP) **AC&RI, Killikulam:**** Dr. N. Vadivel, AP (Agron.) Dr. C. Raja Babu, AP (CRP) Dr. S. Thambi Durai, AP (FM&P) Dr. B. Venudevan, AP (SS&T)	• The project to be continued. • The title of the project may be modified as "Evaluation of Improved Management Practices for greengram under irrigated condition". • After the completion of the project, demonstration of the technology may be conducted in farmers field through TN-IAMWARM project with WTC, TNAU, Coimbatore. • Harvesting has to be done through combined harvester. • * - *In-lieu of* the scientist transferred, alternate scientist may be identified and necessary approval may be obtained from the Director of Research, TNAU, Coimbatore. (**Action**: P&H, Dept. of CRP, TNAU, CBE). • ** - As per the instruction of the Director of Research during the pre-review meet, the project may be restricted to TNAU, Coimbatore and NPRC, Vamban centres and RRS, Paiyur and AC&RI, Killikulam may be eliminated.
5.	**DCM/VMB/AGR/GGR/2016/001** Integrated Drought Mitigation Technology (IDMT) for greengram (June, 2016 to May, 2019) **NPRC, Vamban (Coordinating Centre):** Dr. S. Marimuthu, AP (Agron.) Dr. V. Babu Rajendra Prasad, AP (CRP)* *He is also incharge for DARS, Chettinad centre to carry out physiological studies. **DARS, Chettinad:** Dr. N. Satheesh kumar, AP (Agron.) Dr. P. Kannan, AP (SS&AC)*	• The project to be continued. • Detailed weather parameters have to be furnished during the cropping period. • The correct dose of PPFM spray concentration has to be finalized with Agricultural Microbiologist and the same may be included in the future experiment. • Crop stage during the PPFM spray has to be mentioned.

	*He is also incharge for NPRC, Vamban centre to carry out Soil science studies. **AC & RI, Kudimiyanmalai:**** Dr. S.P. Sangeetha, AP (Agron.) Dr. A. Anderson, AP (CRP) Dr. D. Lenin raja, AP (SS&AC) **ARS, Vrinjipuram:**** Dr. P. Sridhar, Professor (Agron.) Dr. T. Balaji, AP (SS&AC) Dr. K. Anandhi, AP (CRP) **AEC&RI, Kumulur, Trichy:**** Dr. S. Vijayabaskaran, Professor (Agron.) Dr. T. Sherene Jenita Rajammal, AP (SS&AC) Dr. S. Nithila, AP (CRP)	• During severe stress condition, protective irrigation (using boom sprayer/mobile sprinkler) may be adopted and quantity of water applied may be calculated. • ** - As per the instruction of the Director of Research during the Pre-review meet, the project may be restricted to NPRC, Vamban and DARS, Chettinad centres. AC&RI, Kudimiyanmalai, ARS, Virinjipuram and AEC&RI, Trichy centres may be eliminated.
Other Pulses		
6.	**DCM/CBE/AGR/PUL/2016/001** Relook on sowing time and sowing method for enhancing the winter pulses productivity in rainfed ecosystem (June, 2016 to May, 2019) **TNAU, CBE (Coordinating Centre):** Dr.S.Sanbagavalli, Assoc. Prof. (Agron.) Dr. S. Panneerselvam, Professor (Agron.) Dr. A. Surendrakumar, Professor (FM&P) **RRS Paiyur:** Dr. C. Sivakumar, Assoc. Prof. (Agron.)* Dr. R. Thiyagarajan, AP (FM&P)	• The project to be continued. • * - *In-lieu of* the scientist transferred, alternate scientist may be identified and necessary approval may be obtained from the Director of Research, TNAU, Coimbatore. (**Action**: P&H, RRS, Paiyur).
University Research Projects		
Redgram		
1.	**DCM/PAI/AGR/RGR/2013/001** Effect of foliar application of different sources of phosphorus on yield of transplanted redgram (*Cajanus cajan)* under irrigated conditions. (July, 2015 to June, 2017) Dr. C. Sivakumar, Assoc. Prof. (Agron.)	• The project may be closed and completion report may be submitted.
Blackgram		
2.	**DCM/ VMB/ AGR/ BGR/ 2016/ 001** Response of blackgram to phosphorus and bio-resources in acidic soil (January, 2016 to December, 2018) Dr. S.Marimuthu, AP (Agron.) Dr. M.Gnanachitra, AP (Agrl. Microbiology)	• The project to be continued.
3.	**DCM/KUM/AGR/RGR/2014/001**	• The project may be continued and

	Effect of plant density and method of irrigation on pulse (blackgram) productivity in Cauvery delta zone. (March, 2015 to February, 2017) Dr. S. Vallal Kannan, AP (Agron.)	the extension proposal may be submitted. • The title of the project has to be modified as "Effect of plant density and method of irrigation on blackgram productivity". • Parameters such as water requirement per irrigation, total water requirement and water use efficiency may be calculated.
4.	**New:** Study of high harvest index varieties in blackgram on different crop spacing under North Eastern zone of Tamil Nadu (November, 2014 to October, 2017) Dr. P. Veeramani, AP (Agron.)	• Project number has to be obtained. • Plant population level may be calculated and should be included in the report.
Greengram		
5.	**DCM/KPT/AGR/GGR/2014/001** Effect of foliar nutrition in rice fallow greengram in Tamiraparani delta region (February, 2015 to May, 2017) Dr. S. Manoharan, AP (Agron.)	• The project to be continued and the extension proposal may be submitted.
6.	**DRES/KPT/AGR/014/001** Time of sowing and weed management for rainfed greengram (September, 2014 to August, 2017) Dr. S. Subbulakshmi, AP (Agron.)	• The project may be closed and the completion report to be submitted.
7.	**ACTR/TRY/AGR/15/002** Studies on the performance of varieties and seed rate of greengram under rice fallow condition in sodic soil (August, 2015 to July, 2017) Dr.S.Rathika, AP (Agron.)	• The project may be closed and the completion report to be submitted.
Other Pulses		
8.	**DCM/VIJ/AGR/VEG/2016 /001** Effect of different date of sowing and integrated nutrient management in Field Lab- Lab(Mochai) (*Lab lab purpureus* (L.) var. *lignosus*) for green pod yield under rainfed condition of Vellore District, Tamil Nadu (May, 2016 to April, 2018) Dr. P.Sridhar, Professor (Agron.)	• Since the project comes under vegetable crop category, project report has to be submitted to the Dean (Horticulture), TNAU, Coimbatore.
Other Crops		
9.	**DCM/TRY/AGR/TRI/2015/001** Study of biology, physiology and managemen of *Trianthema portulacastrum* in gardenland	• The project may be closed and completion report to be submitted.

	ecosystem (March, 2015 to February, 2017) Dr. T. Ramesh, AP (Agron.)	
AICRP Projects		
Redgram		
1.	**AICRP/PBG/VBN/PIP/011** Studies on drought mitigation in Pigeonpea (June, 2014 to May, 2017) Dr. S.Marimuthu, AP (Agron.)	• The project may be closed.
2.	**AICRP/PBG/VBN/PIP/011** Standardization of sowing schedule for pigeonpea during late onset of monsoon in Tamil Nadu. (June, 2016 to May, 2019) Dr. S.Marimuthu, AP (Agron.)	• The long duration redgram variety CO 6 is not cultivated by Pudukkottai district farmers. Hence the project may be closed at NPRC, Vamban and the trial to be conducted only at Coimbatore centre. • A region specific new project may be proposed.
3.	**AICRP/PBG/CBE/PIP/010** Standardization of sowing schedule for pigeonpea during late onset of monsoon in Tamil Nadu (June, 2016 to May, 2018) Dr. K. Kalaichelvi, AP (Agron.)	• The project to be continued.
4.	**AICRP/PBG/CBE/PIP/010** Square method of drill and manual sowing for facilitating two way operation of power operated weeder in pigeonpea (June, 2016 to May, 2018) Dr. K. Kalaichelvi, AP (Agron.)	• The project to be continued.
5.	**AICRP/PBG/CBE/PIP/010** Response of pigeonpea to drip irrigation (June, 2016 to May, 2018) Dr. K. Kalaichelvi, AP (Agron.)	• The project to be continued
6.	**AICRP/PBG/CBE/PIP/010** Studies on drought mitigation strategies for pigeonpea (June, 2016 to May, 2018) Dr. K. Kalaichelvi, AP (Agron.)	• The project to be continued
Blackgram		
7.	**AICRP/PBG/VBN/MUL/013** Effect of land configuration and weed management on urdbean productivity **(**June, 2015 to May, 2017)	• The project may be closed, as per the technical proceedings of the annual group meet on AICRP - MULLaRP, 2017.

	Dr. S. Marimuthu, AP (Agronomy)	
8.	**AICRP/PBG/VBN/MUL/013** Foliar nutrition on urdbean productivity **(**June, 2015 to May, 2018) Dr. S. Marimuthu, AP (Agronomy)	• The project to be continued, as per the technical proceedings of the annual group meet on AICRP - MULLaRP, 2017.
9.	**AICRP/PBG/VBN/MUL/013** Herbicidal weed management in urdbean and its carry over effect on succeeding *rabi* crops **(**June, 2016 to May, 2019) Dr.S.Marimuthu, AP (Agronomy)	• The project to be continued, as per the technical proceedings of the annual group meet on AICRP - MULLaRP, 2017.
10.	**AICRP/PBG/CBE/MUL/014** Effect of land configuration and weed management practices on urdbean productivity (June, 2015 to May, 2017) Dr. M. Senthivelu, AP (Agronomy)	• The project may be closed, as per the technical proceedings of the annual group meet on AICRP - MULLaRP, 2017.
11.	**AICRP/PBG/CBE/MUL/014** Foliar nutrition on urdbean productivity (June, 2015 to May, 2018) Dr. M. Senthivelu, AP (Agronomy)	• The project to be continued, as per the technical proceedings of the annual group meet on AICRP - MULLaRP, 2017.
12.	**AICRP/ PBG/ ADT/ MUL/ 015** Fertility and weed management in summer urdbean (April, 2015 to March, 2017) Dr. C. Umamageswari, AP (Agronomy)	• The project may be closed, as per the technical proceedings of the annual group meet on AICRP - MULLaRP, 2017.
13.	**AICRP/ PBG/ ADT/ MUL/ 015** Conservation technology and weed management for rice fallow blackgram (April, 2015 to March, 2018) Dr. C. Umamageswari, AP (Agronomy)	• The project to be continued, as per the technical proceedings of the annual group meet on AICRP - MULLaRP, 2017. • Weed species and weed density in each treatment has to be mentioned.
14.	**AICRP/ PBG/ ADT/ MUL/ 015** Performance of summer urdbean AVT-2 genotypes under varied plant population for higher productivity (April, 2015 to March, 2018) Dr. C. Umamageswari, AP (Agronomy)	• The project to be continued/ continued, as per the technical proceedings of the annual group meet on AICRP - MULLaRP, 2017.
Greengram		
15.	**AICRP/PBG/VBN/MUL/013** Effect of land configuration and weed management on Mungbean productivity	• The project may be closed as per the technical proceedings of the annual group meet on AICRP -

	(June, 2015 to May, 2017) Dr. S. Marimuthu, AP (Agronomy)	MULLaRP, 2017.
16.	**AICRP/PBG/CBE/MUL/014** Herbicidal weed management in mungbean and its carry over effect on succeeding *rabi* crops (June, 2016 to May, 2019) Dr. M. Senthivelu, AP (Agronomy)	• The project to be continued, as per the technical proceedings of the annual group meet on AICRP - MULLaRP, 2017.
17.	**AICRP/PBG/CBE/MUL/014** Foliar nutrition on mungbean productivity (June, 2015 to May, 2018) Dr. M. Senthivelu, AP (Agronomy)	• The project to be continued, as per the technical proceedings of the annual group meet on AICRP - MULLaRP, 2017.
18.	**AICRP/DCM/KPT/AGR/003** Response of greengram varieties to sowing windows (September, 2015 to July, 2017) Dr. S. Subbulakshmi, AP (Agronomy)	• The project may be closed
Soybean		
19.	**AICRP /PBG / CBE / SOY / 016** Evaluation of AVT - II entries under different sowing dates (June, 2016 to May, 2017) Dr. S. Sanbagavalli, Assoc. Prof. (Agron.)	• The project may be closed
20.	**AICRP /PBG / CBE / SOY / 016** Sustainable soybean production through crop diversification and tillage (June, 2015 to May, 2018) Dr. S. Sanbagavalli, Assoc. Prof. (Agron.)	• The project to be continued
21.	**AICRP /PBG / CBE / SOY / 016** Application of foliar nutrition on soybean productivity (June, 2015 to May, 2017) Dr. S. Sanbagavalli, Assoc. Prof. (Agron.)	• The project may be continued
22.	**AICRP /PBG / CBE / SOY / 016** Effect of hydrogel on soybean productivity (Demonstration) (June, 2015 to May, 2017) Dr. S. Sanbagavalli, Assoc. Prof. (Agron.)	• The project may be closed

2. SOIL SCIENCE AND AGRICULTURAL CHEMISTRY

Sl. No.	Project No. and Title	Remarks
University Research subprojects		

Redgram		
1	**NRM/MDU/SAC/RGR/2014/001** Assessment of phosphorus utilization and response of redgram cultivars to P in alkaline calcareous soils of Madurai district (March, 2014 to February, 2017) Dr. S.Thiyageshwari, Prof. (SS&AC)	• The project may be closed and completion report to be submitted
2	**NRM/APK/SAC/SMM/2016/001** Effect of Integrated nutrient management practices on growth and yield of red gram (APK I) and barnyard millet CO(kv)2 in rainfed black soils of Virudhunagar district (October, 2016 to March, 2018) Dr. B. Bhakiyathusaliha, AP. (SS&AC)	• The project to be continued
Blackgram		
3	**NRM/CTN/SAC/BGR/2015/001** Effect of biochar and *phosphobacteria* on carbon build-up, phosphorous availability and blackgram yield in rainfed *Alfisol* (April, 2015 to March, 2018) Dr. P. Kannan, Asst. Prof. (Soil Sci.)	• The project to be continued
Other Pulses		
4	**NRM/CBE/SAC/RIC/2016/002** Mapping of Zn deficiency in rice and pulse growing soils of various districts in Tamil Nadu and its management. (July, 2016 to July, 2018) Dr. D. Jegadeeswari, Asst. Prof. (SS&AC) Dr. P. Malathi, Asst. Prof. (SS&AC) Dr. R. Jagadeeswaran, Asst. Prof. (SS&AC)	• The project to be continued

3. CROP PHYSIOLOGY

Sl. No.	Project	Remarks	
Action taken on Action paln			
1	**Transport deficiency in Blackgram may be studied** (NPRC, Vamban and Dept. of Crop Physiology, TNAU,	In Blackgram CO 6, the following treatments may be imposed.	
		Treatments	**Stage of Application**
		Salicylic acid (250 ppm)	Spraying at flower

	Coimbatore (June, 2017 to May, 2018)	Mepiquat Chloride (250 ppm)	initiation stage and 15 days there after
		Chlorocholine chloride (150 ppm)	
		TNAU- Pulse wonder (5kg/ha)	Spraying at peak flowering stage
		Control	Without any treatment
		Along with other treatments seed treatment with Salicylic acid (50 ppm) may also be included. **Observations to be recorded:** a) Number of pods per plant; Number of seeds per pod b) Test weight c) Total soluble sugars d) Soluble protein content	
University Research Projects:			
1.	**DCM/TRY/SAC/BGR/2013/001** Study on impact of growth regulating substances in improving crop establishment and harvest index in black gram and greengram under sodicity. October, 2013 to September, 2016 Dr. S. Nithila, Asst. Prof. (CRP)	• The project may be closed and completion report may be submitted. • The results have to be tested at OFT level	
2.	**DCM / CBE/ CRP / BGR / 2016 / 001** Impact of PGRs and nutrients on mitigation of salinity stress effect in blackgram .May, 2016 to March, 2018 Dr. R. Sivakumar Asst. Prof. (CRP) Dr. S. Kavitha, Asst. Prof. (SST)	• The project to be continued. • Since, Dr. R. Sivakumar is transferred to RRS, Paiyur, a proposal for change of project leader may be submitted for approval.	
3.	**DCM/VBN/CRP/BGR/2015/001** Impact of high temperature and moisture stress on photosynthesis, flowering and yield of blackgram genotypes . April, 2015 to March, 2017 Dr. V. Babu Rajendra Prasad, AP. (CRP)	• Since the high temperature studies have to be carried out, the project has to be continued. The extension proposal may be submitted for approval.	
4.	**DCM/VBN/CRP/BGR/2014/002** Physiological and biochemical evaluation of blackgram genotypes for drought tolerance. May , 2016 to April, 2019 Dr. V. Babu Rajendra Prasad, AP. (CRP)	• Treatments may be revised based on soil moisture deficit approach • The project has to be resubmitted for approval with midterm corrections	

3. AGRICULTURAL MICROBIOLOGY

Sl. No	Project Number	Remarks
Action taken on action plan		
1.	**NRM/MDU/AGM/PUL/2016/001** Shelf life studies of the newer (water soluble) formulation of *Rhizobium* and AM fungi for seed coating of pulses. September 2016 to August 2018 Dr.K.Kumutha, Prof. & Head (AGM) Dr.R.Parimaladevi, Asst. Prof. (AGM)	• Study on shelf life of the new formulation and seedling vigour may be continued for one year
University Research Projects		
1.	**NRM/CBE/AGM/15/002** Enhancing root nodulation in blackgram grown in acid soils using *Rhizobium* mutants and helper bacterium *Exiguobacterium sp*. August 2015 to July 2017 Dr.R. Sridar, Prof. (AGM) Dr. M. Gnanachitra, Asst. Prof. (AGM)	• One more field trial may be conducted in acid soils of Vamban
2.	**NRM/VMB/AGM/RGR/2015/001** Arbuscular Mycorrhizal mediated nodulation and nitrogen fixation in Redgram. April 2015 to March 2018. Dr. M. Gnanachitra, Asst. Prof. (AGM)	• The Project may be continued
3.	**NRM/KKM/AGM/GGR/2015/001** Evaluating the efficiency of AM fungal inocula in combination with *Rhizobium* on the growth of greengram. April 2015 to March 2017 Dr. L. Srimathi Priya, Asst. Prof. (AGM)	• The project may be continued
4.	**NRM/CBE/AGM/15/003** Screening of symbiotic efficiency of *Rhizobium* in Chickpea. January 2015 to January 2018 Dr. J. Ejilane, Asst. Prof. (AGM)	• The project may be continued and field trial may be initiated at the earliest

5. SEED SCIENCE AND TECHNOLOGY

Sl. No	Project No & Title	Remarks
Action taken		

1.	Early Foliar spray of nutrients to arrest flower drop and increase seed yield in greengram (June, 2016 to May, 2019) **Centres:** **Seed Centre (Coordinating centre):** Dr.K.Sundaralingam, Prof.(SST) Dr.M.Senthivelu, AP.(Agronomy) Dr.P.Jeyakumar, P&H (CRP)	• Study may be continued with the following additional two centres. **1.NPRC, Vamban** Dr.C.Vanitha, Asst.Prof.(SST) Dr.V.Babu Rajendra Prasad,Asst. Prof. (CRP) Dr.S.Marimuthu, Asst.Prof. (Agronomy) **2. AC&RI, Killikulam** Dr.B.Venudevan, Asst. Prof.(SST) Dr.N.Senthilkumar, Asst.Prof. (Agronomy) Dr.A.Senthil, Assoc. Prof. (CRP)
University Research Projects		
Redgram		
1.	**SEED/VMB/SST/RGR/2013/001** Response of pigeonpea VBN 3 to season and plant bioregulators intervention in relation to seed physiology and yield potential. Oct. 2013 to Sept. 2016 Dr. C.Vanitha, Asst. Prof. (SST) Dr.K.Sundaralingam, Prof. (SST)	• The project may be closed and completion report may be submitted.
2.	**SEED/BSR/SST/RGR/2016/001** Standardization of seed production and storage techniques for enhanced seed yield and quality in perennial redgram (cv.BSR.1). Dec. 2016 to Nov. 2018 Dr.R.Jerlin, Prof. (SST)	• The project to be continued.
Blackgram		
3.	**SEED/VMB/SST/BGR/2014/001** Development of organic seed invigouration technique for enhancing various vigour status of blackgram seeds. Oct. 2014 to Sept. 2017. Dr. C.Vanitha, Asst. Prof. (SST)	• The project to be continued.
4.	**SEED/CBE/SST/BGR/2016/001** Study on influence of seed priming with micro nutrients on seed vigour, field emergence and seed yield in blackgram and Redgram. Mar. 2016 to Feb. 2018. Dr.S.Kavitha, Asst. Prof. (SST)	• The project to be continued.

Greengram		
5.	**SEED/ CBE/ SST/ GGR/ 2016/ 001** Early foliar spray intervention to arrest flower drop and increase seed filling in greengram. June 2016 to May 2019. Dr. K. Sundaralingam, Prof. (SST)	• The project to be continued.
6.	**SEED/VGD/SST/GGR/2015/001** Performance evaluation of the primed green gram seeds under storage conditions. Nov, 2015 to Oct, 2017 Dr.G.Mani, Asst. Prof. (SST)	• The project to be continued till the seeds attained the minimum germination per cent as per the IMSCS during storage.
7.	**SEED/BSR/SST/GGR/2015/001** Assessment of seed vigour for crop productivity of fresh, validated and revalidated seeds of greengram. March 2015 to November 2017 Dr.G.Sasthri, Asst. Prof. (SST)	• The project to be continued.
Other Pulses		
8.	**SEED/PAI/SST/HGR/2014/001** Standardization of seed priming to improve germination and productivity in horsegram under rainfed condition. Oct. 2014 to Oct.2017 Dr. P. Srimathi, Prof. (SST)	• The project to be continued. • The result may be given for OFT.
9.	**SEED/PAI/SST/FIB/2016/001** Standardization of seed crop management and storage techniques in mochai (*Lablab purpureus* var *Lignosus* (L.) genotype PYR-03-004, the pre released culture for rainfed condition December, 2016 to March, 2017 Dr. P. Srimathi. Prof. (SST) Dr. P. Suthamathi, Assoc. Prof. (PBG)	• The project to be continued.

d. General remarks: Nil

e. Action plan 2016-19

Theme No. 1	Integrated Drought Mitigation Technology (IDMT) for blackgram and greengram				
Theme Leader	**Blackgram: Dr.S. Subbulakshmi, Assistant Professor (Agronomy), ARS, Kovilpatti** **Greengram: Dr. S.Marimuthu, Assistant Professor (Agronomy), NPRC, Vamban**				
Activity	**Name of the scientist and centre**	**2016-17**	**2017-18**	**2018-19**	**Deliverables/ expected out come**
• To find out suitable land configuration for rainfed greengram and blackgram cultivation • To assess the influence of drought mitigation measures on water conservation and yield of greengram and blackgram	**Blackgram** **Kovilpatti** Dr.S. Subbulakshmi Dr. V. Sanjiv Kumar Dr. T. Sivakumar **Greengram** **Vamban** Dr. S.Marimuthu Dr. V. Babu Rajendra Prasad **Chettinad** Dr. N. Satheesh Kumar Dr. P. Kannan	• Project proposal and approval • Experiment layout and sowing • Crop management, monitoring and observation • Harvest and data Processing	• Confirmative trial	• On-Farm Trial (OFT) • Report preparation	• Efficient moisture conservation and utilisation under rainfed condition • Improved moisture use efficiency and enhanced yield

Theme No. 2	Best Management Practices (BMP) for greengram under irrigated condition				
Theme Leader	**Dr. M. Senthivelu, Asst. Professor (Agron), Dept. of Pulses, TNAU, Coimbatore**				
Activity	**Name of the scientist and centre**	**2016-17**	**2017-18**	**2018-19**	**Deliverables/expected out come**
• To develop mechanized package of practices for greengram	**Coimbatore** Dr. M. Senthivelu Dr. A. Surendra Kumar Dr. R. Sivakumar Dr. S. Kavitha **Vamban** Dr. S.Marimuthu	• Project proposal and approval • Experiment layout and sowing • Crop management, monitoring and observation	• Confirmative trial	• On-Farm Trial (OFT) • Report preparation	• Cost effective production technology • Reduction in labour requirement • Higher yield and return

	Dr. C. Vanitha Dr. V. Babu Rajendra Prasad	• Harvest and data processing			

Theme No. 3	**Yield maximization in rice fallow blackgram**				
Theme Leader	**Dr. C. Umamageswari, Assistant Professor (Agronomy), TRRI, Aduthurai**				
Activity	**Name of the scientist and centre**	**2016-17**	**2017-18**	**2018-19**	**Deliverables/expected out come**
• To develop suitable package of practices for yield enhancement in rice fallow blackgram	**Aduthurai** Dr. C. Umamageswari Dr. K. Krishnaveni Dr. K. Vanitha Dr. A.P. Mohan Kumar	• Project proposal and approval • Experiment layout and sowing • Crop management, monitoring and observation • Harvest and data Processing	• Confirmative trial	• On-Farm Trial (OFT) • Report preparation	• Optimum time of sowing and seed rate, terminal drought mitigation through mobile sprinkler, yield enhancement and economic return

Theme No. 4	**Evaluation of different redgram based strip intercropping systems under rainfed condition**				
Theme Leader	**Dr.K.Kalaichelvi, Asst. Professor (Agronomy), Dept. of Pulses, TNAU, Coimbatore**				
Activity	**Name of the scientist and centre**	**2016-17**	**2017-18**	**2018-19**	**Deliverables/ expected out come**
• To evaluate the suitable redgram based strip cropping under rainfed condition. • To study the nutrient uptake and nutrient balance in different	**Coimbatore** Dr.K.Kalaichelvi Dr. K. Sathiyabama Dr. R. Sivakumar, **RRS, Paiyur** Dr. C. Sivakumar	• Project proposal and approval • Experiment layout and sowing • Crop management,	• Confirmative trial	• On-Farm Trial (OFT) • Report preparation	• Risk management system under rainfed condition. • Even one crop fails, the farmer get income from

redgram based strip cropping systems. • To study the dynamics of weed, insect pests and diseases in redgram strip cropping system.	Dr. M. Vijayakumar Dr. K. Krishna Surendar	monitoring and observation • Harvest and data Processing			other crops. • Able to identify better system that could able to thrive under rainfed condition

Theme No. 5	**Relook on sowing time and sowing method for enhancing the winter pulses productivity in rainfed ecosystem**				
Theme Leader	**Dr.S.Sanbagavalli, Assistant Professor (Agronomy), Department of Agronomy, TNAU, Coimbatore**				
Activity	**Name of the scientist and centre**	**2016-17**	**2017-18**	**2018-19**	**Deliverables/ expected out come**
• To standardize the sowing time for enhancing the yield of winter pulses *viz*., Bengalgram & Horsegram • To study the influences of heat units and relative humidity on growth and yield of Bengalgram and Horsegram • To assess the yield	**Coimbatore** Dr.S.Sanbagavalli Dr. S.Panneerselvam Dr.A.Surendrakumar **Paiyur** Dr. C. Sivakumar Dr. R.Thiyagarajan,	• Project proposal and approval • Experiment layout and sowing • Crop management, monitoring and observation • Harvest and data Processing	• Confirmative trial	• On-Farm Trial (OFT) • Report preparation	• Standardize the sowing time and sowing method • Increasing the rainfall use efficiency & yield

potential of Bengalgram and Horsegram under different sowing methods					

Theme No. 6	**Mapping of Zn deficiency in pulse growing soils of various districts in Tamil Nadu and its management**				
Theme Leader	**Dr.D.Jegadeeswari, Asst. Professor, Dept.of SS&AC, TNAU, Coimbatore**				
Activity	**Name of the scientist and centre**	**2016-17**	**2017-18**	**2018-19**	**Deliverables/expected out come**
• To prepare block level thematic maps for Zn deficiency in Pulse growing areas using the delineation data of remaining10 districts • To suggest suitable package of recommendations to alleviate Zn deficiency in the soils of Pulse growing tracts	**Coimbatore** Dr.R.Jagadeeswaran	Assessment of zinc deficiency in Trichy, Thiruvallur and Dindigul districts.	Assessment of zinc deficiency in Ariyalur, Perambalur, Thiruppur and Karur districts.	Assessment of zinc deficiency in the remaining districts like Nilgiris, Kancheepuram, Thiruvallur and Thanjavur districts will be covered and recommendations will be given for the deficient areas.	• In the identified zinc deficient areas, application of 25 kg $ZnSO_4$ per ha is required along with recommended NPK to maximize the pulse production in Tamil Nadu

Theme No. 7	Early foliar spray nutrient to arrest flower drop and increase seed yield in greengram				
Theme Leader	**Dr.K.Sundaralingam, Prof. (SST), Seed Centre, TNAU, Coimbatore**				
Activity	**Name of the scientist and centre**	**2016-17**	**2017-18**	**2018-19**	**Deliverables/ expected out come**
• To reduce flower drop, increase pod set and seed filling for enhancing the seed yield and quality of greengram through foliar nutrition.	**Seed Centre** Dr.K.Sundaralingam Dr.M.Senthivelu Dr.P.Jeyakumar **NPRC, Vamban** Dr.C.Vanitha Dr.V.Babu Rajendraprasad Dr.S.Marimuthu **AC&RI, Killikulam** Dr.B.Venudevan, Asst. Prof.(SST) Dr.N.Senthilkumar, Asst.Prof. (Agronomy) Dr.A.Senthil, Assoc. Prof. (CRP)	• Project proposal and approval • Experiment layout and sowing • Crop management, monitoring and observation • Harvest and data Processing	• Confirmative trial	• On-Farm Trial (OFT) • Report preparation	• The outcome of research will help to overcome the flower drop and improve the seed set and seed yield by 15 to 20 %.

Theme No. 8	**Shelf life of new (water soluble) formulations of *Rhizobium* and AM fungi for seed coating of pulses**			
Theme Leader	**Dr. K.Kumutha, Professor & Head (Agrl. Microbiology), AC&RI, Madurai**			
Activity	**Name of the scientist and centre**	**2016-17**	**2017-18**	**Deliverables/expected out come**
• To study the survival of *Rhizobium* and AM fungi in formulation as well as coated seeds of blackgram and redgram • To assess the viability of the coated seeds under storage	**Madurai** Dr. K.Kumutha **Coimbatore** Dr. R. Parimaladevi	• The newer (water soluble) formulations of *Rhizobium* and AM fungi inoculums will be coated in pulse seeds (Big and small size) *viz.*, Blackgram / Greengram & Red gram and will be kept for shelf life studies under room temperature condition. • The survival of the inoculums *viz.*, *Rhizobium* (population /g) and AM fungi (Spore load /g) will be evaluated both in the formulation and in the coated seeds at monthly intervals.	• The newer (water soluble) formulations of *Rhizobium* and AM fungi inoculums will be coated in pulse seeds (Big and small size) *viz.*, Blackgram / Greengram & Red gram and will be kept for shelf life studies under room temperature condition. • The survival of the inoculums *viz.*, *Rhizobium* (population /g) and AM fungi (Spore load /g) will be evaluated both in the formulation and in the coated seeds at monthly intervals.	• If the survival (shelf life) of the inoculum in coated pulse seed is more (one year) , we could supply the coated seeds to the farmer • Long term storage (one year) of the inoculum under room temperature itself.

Work load of the individual scientists

SI.No.	Scientist/Action plan	Theme 1A	Theme 1B	Theme 2	Theme 3	Theme 4	Theme 5	Theme 6	Theme 7	Theme 8
		Integrated Drought Mitigation Technology (IDMT) for blackgram	Integrated Drought Mitigation Technology (IDMT) for greengram	Best Management Practices (BMP) for greengram under irrigated condition	Yield maximization in rice fallow blackgram	Evaluation of different redgram based strip intercropping systems under rainfed condition	Relook on sowing time and sowing method for enhancing the winter pulses productivity in rainfed ecosystem	Mapping of Zn deficiency in pulse growing soils of various districts in Tamil Nadu and its management	Early foliar spray nutrient to arrest flower drop and increase seed yield in greengram	Shelf life of new (water soluble) formulations of *Rhizobium* and AM fungi for seed coating of pulses
1	Dr. S. Subbulakshmi, Asst.Prof. (Agronomy)	√								
2	Dr. V. Sanjiv Kumar, Asst.Prof. (SS&AC)	√								
3	Dr.T. Sivakumar, Assoc. Prof. (CRP),	√								
5	Dr. S. Marimuthu, Asst. Prof. (Agron.)		√	√					√	
6	Dr. C. Vanitha, Asst.Prof. (SS&T)			√					√	
7	Dr. V. Babu Rajendra Prasad, Asst. Prof. (CRP)		√	√					√	
8	Dr. N. Satheesh kumar, Asst.Prof. (Agronomy)		√							
9	Dr. P. Kannan, Asst.Prof. (SS&AC)		√							
10	Dr. M. Senthivelu, Asst. Prof (Agron.)			√					√	
11	Dr. A. Surendra Kumar, Professor (FM&P)			√			√			
12	Dr. R. Sivakumar, Asst. Prof (CRP)*			√						
13	Dr. S. Kavitha, Asst. Prof. (SS&T)			√						

14	Dr. C. Umamageswari, Asst. Prof. (Agronomy)				√					
15	Dr. K. Krishnaveni, Professor (SS&T)				√					
16	Dr. K. Vanitha, Asst. Prof. (CRP)				√					
17	Dr. A. P. Mohankumar, Asst. Prof.(FM&P)				√					
18	Dr. K. Kalaiselvi, Asst.Prof. (Agron.)					√				
19	Dr. K. Sathiyabama, Asst.Prof. (SS & AC)					√				
20	Dr. R. Sivakumar, Asst. Prof. (CRP)					√				
21	Dr. C. Sivakumar, Assoc. Prof. (Agron.)					√	√			
22	Dr. M. Vijayakumar, Asst. Prof. (SS & AC)					√				
23	Dr. K. Krishna Surendar, Asst. Prof. (CRP)					√				
24	Dr. S. Sanbagavalli Asst.Prof. (Agron.)						√			
25	Dr. S. Pannerselvam Professor (Agron.)						√			
26	Dr. R. Thiyagarajan Asst.Prof. (FM&P)						√			
27	Dr. D. Jegadeeswari, Asst. Prof. (SS&AC)							√		
28	Dr. P. Malathi, Asst. Prof. (SS&AC)							√		
29	Dr. R. Jagadeeswaran, Asst. Prof. (SS&AC)							√		
30	Dr.K.Sundaralingam, Professor.(SST)								√	
31	Dr.P.Jeyakumar, Prof & Head (CRP)								√	
32	Dr.B.Venudevan, Asst. Prof.(SST)								√	

33	Dr.N.Senthilkumar, Asst.Prof. (Agronomy)								√	
34	Dr.A.Senthil, Assoc. Prof. (CRP)								√	
35	Dr.K.Kumutha, Prof. & Head (AGM)									√
36	Dr.R.Parimaladevi, Asst. Prof. (AGM)									√

III. Crop Protection

a. Decisions made on OFT: Nil

b. Research projects on pulses

Crop	Centre	URP	AICRP	EFP	Total
Agricultural Entomology					
Redgram	NPRC, Vamban	3	1	-	4
	Pulses, Coimbatore	-	1	-	1
	AC&RI, Madurai	1	-	-	1
Blackgram	NPRC, Vamban	2	1	-	3
	Pulses, Coimbatore	-	1	-	1
Greengram	NPRC, Vamban	-	1	-	1
	Pulses, Coimbatore	-	1	-	1
Others	AC&RI, Killikulam	1	-	-	1
	Total	**7**	**6**	**0**	**13**
Plant Pathology					
Redgram	NPRC, Vamban	-	1	-	1
	Pulses, Coimbatore	-	1	-	1
Blackgram	NPRC, Vamban	1	1	1	3
	Pulses, Coimbatore	-	1	-	1
Greengram	NPRC, Vamban	-	1	-	1
	Pulses, Coimbatore	-	1	-	1
	Total	**1**	**6**	**1**	**8**
Nematology	Coimbatore	-	1	-	1
	Total	**0**	**1**	**0**	**1**

c. Remarks on the ongoing university research subprojects/AICRP/Externally funded projects

1. Agricultural Entomology

S. No.	Project Number and Title	Remarks
University Research Projects		
REDGRAM		
1.	CPPS/VMB/ENT/RGR/2013/002 Evaluation of pigeonpea genotypes for resistance or tolerance to pod damaging insects. July 2013 to June 2016 Dr. Zadda Kavitha Assistant Professor (Agrl. Entomology)	The completion report is submitted and the project is closed.
2.	CPPS/VMB/ENT/RGR/2014/003 Management of pod insect pests of pigeon pea with biorational approach. April 2014 to March 2017 Dr. V.R. Saminathan	The project may be closed.

S. No.	Project Number and Title	Remarks
	Assistant Professor (Agrl. Entomology)	
3.	CPPS/MDU/AEN/RGR/2014/004 Diversity, seasonal abundance and development of IPM module for major pests of transplanted pigeonpea under precision farming system June 2014 to May 2017 Dr. M.Shanthi Professor (Agrl. Entomology)	The project may be continued
4.	CPPS/VBN/ENT/RGR/2016/001 Development of an IPM module for the management of the legume pod borer *Maruca vitrata* (Geyer) in redgram July 2016 to June 2019 Dr. Zadda Kavitha Assistant Professor (Agrl. Entomology)	• The species name of coccinellid, spider and parasitoid may be mentioned. • The data must be analysed statistically. • CIB registered chemicals with label claim alone should be evaluated. • Staggered sowing may be done for correlation of weather factors. The project may be continued.
5.	CPPS/VBN/ENT/RGR/2016/002 Management of pod fly *Melanagromyza obtuse* (Malloch) in redgram July 2016 to June 2019 Dr. Zadda Kavitha Assistant Professor (Agrl. Entomology)	The project may be continued.
BLACKGRAM		
6.	CPPS/VMB/ENT/BGR/2014/001 Efficacy of bioinoculants in combination with insecticides against insect pests of blackgram, *Vigna mungo* (L.) Hepper. April 2014 to March 2017 Dr. V.R. Saminathan Assistant Professor (Agrl. Entomology)	The project may be closed and the completion report should be submitted.
7.	CPPS/MDU/AEN/BGR/2014/005 Eco-friendly management of pulse beetle, *Callosobruchus* spp. in black gram under field and storage conditions. April 2014 to March 2017 Dr. J. Jayaraj Professor (Agrl. Entomology)	The scientist has not attended and presented the progress.
8.	CPPS/MDU/AEN/BGR/2013/003 Bioecology and management of sucking pests, leaf feeders and pod borer complex in black	Completion report submitted and the project is closed.

S. No.	Project Number and Title	Remarks
	gram. June 2013 to May 2016 K. Premalatha, Assistant Professor (Agrl. Entomology)	
9.	CPPS/KKM/ENT/BGR/2014/001 Population dynamics of insect pests of blackgram, *Vigna mungo* (L.) Hepper and seed treatment for their management. Dec 2014 to Nov. 2016 Dr. N. Murugesan Professor (Agrl. Entomolgy)	
10.	CPPS/CBE/AEN/BGR/2013/036 Development of an eco-friendly plant origin seed treatment product for the management of pulse beetle in storage and pests of vegetables nursery February 2013 to January 2016 Dr. S.Jeyarajan Nelson Professor (Agrl. Entomology)	The project may be closed. The OFT will be conducted for one more time. The ovicidal activity will also be tested.
11.	CPPS/VMB/ENT/BGR/2016/002 Exploration of resistant sources of bruchids and their management in Blackgram January 2016 to December 2018 Dr. V.R. Saminathan Assistant Professor (Agrl. Entomology)	The project may be continued.
12.	CPPS/VMB/ENT/BGR/2016/003 Development of a forewarning system for the key pests infesting Blackgram January 2016 to December 2018 Dr. V.R. Saminathan Assistant Professor (Agrl. Entomology)	The project may be continued.
COWPEA		
13.	CPPS/VMB/ENT/COP/2013/001 Screening of cowpea germplasm for the sources of resistance or tolerance to aphid, aphid borne mosaic virus and pod borers July 2013 to June 2016 Dr. Zadda Kavitha Assistant Professor (Agrl. Entomology)	The project is closed.
14.	CPPS/VMB/ENT/COP/2014/001 Efficacy of biocides against the pests of cowpea, *Vigna ungulate* (L.) Walp April 2014 to March 2017 Dr. V.R. Saminathan Assistant Professor (Agrl. Entomology)	The completion report may sent to close the project.

S. No.	Project Number and Title	Remarks
HORSEGRAM		
15.	CPPS/PAI/ENT/HGR/2014/001 Evaluation of Horsegram (*Macrotyloma uniflorum* Lam.) germplasm for their reaction to Bruchids C*allosobruchus s*p). November 2013 to October 2016 Dr. P.Thilagam Asst. Professor (Agrl. Entomology)	The project is closed.
16.	CPPS/PAI/ENT/VEG/2015/001 Population dynamics of major pests of field bean and biointensive pest management Aug 2015 to Jul 2017 Dr.S.Mohamed Jalaluddin Professor (Entomology)	The progress of work has not been presented.
OTHER PULSES		
17.	New Studies on the ecology and management of bruchids in pulses of south Tamil Nadu 2017 to 2019 Dr. L. Allwin	The progress of work has not been presented.
AICRP Projects		
REDGRAM		
18.	AICRP/PBG/VBN/PIP/011 AICRP on Pigeonpea (Entomology) January 2015 to December 2019 Dr. Zadda Kavitha Assistant Professor (Agrl. Entomology)	The research work will be continued based on the technical program of AICRP.
19.	AICRP/PBG/CBE/PIP/010 AICRP on Pigeonpea (Entomology) January 2015 to December 2019 Dr. D.Rajabaskar Assistant Professor (Agrl. Entomology)	The details of grades and scales should be mentioned. In monitoring *Maruca* experiment, the correlation studies should be carried out. In survey experiment, farmers name, location and GPS data should be included.
BLACKGRAM AND GREENGRAM		
20.	AICRP/PBG/VBN/MUL/013 AICRP on MULLaRP (Entomology) January 2015 to December 2019 Dr. V.R. Saminathan	The project may be continued as per the technical programme of AICRP.

S. No.	Project Number and Title	Remarks
	Assistant Professor (Agrl. Entomology)	
21.	AICRP/PBG/CBE/MUL/014 AICRP on MULLaRP (Entomology) January 2015 to December 2019 Dr. D.Rajabaskar Assistant Professor (Agrl. Entomology)	The project may be continued as per the technical programme of AICRP.

2.Plant Pathology

	UNIVERSITY RESEARCH PROJECTS	
	BLACKGRAM	
1.	CPPS/VMB/PAT/BGR/2014/001 Probing of causal agent, transmission nature and evaluation for resistance in blackgram entries against leaf crinkle disease. September 2014 to August 2017 Dr. V.K. Satya Assistant Professor (Plant Pathology)	The project may be continued. 0 to 10% may be considered as 'resistant' in general.
	AICRP PROJECTS	
	REDGRAM	
	AICRP/PBG/VBN/PIP/011 AICRP on Pigeonpea (Plant Pathology) January 2015 to December 2019 Dr. V.K. Satya Assistant Professor (Plant Pathology)	The project may be continues as per the technical programme of AICRP.
	AICRP/PBG/CBE/PIP/010 AICRP on Pigeonpea (Plant Pathology) January 2015 to December 2019 Dr. E. Rajeswari Assistant Professor (Plant Pathology)	In the correlation/regression analysis, the soil moisture, soil pH and vector population may also be included. The regression analysis may be re-checked. The studies on the host differentials in SMD may be repeated and confirmed. The multiple resistant entries may be identified and reported. The project may be continued as per the technical programme of AICRP.
	BLACKGRAM AND GREENGRAM	
	AICRP/PBG/VBN/MUL/013 AICRP on MULLaRP (Plant Pathology) January 2015 to December 2019	The project may be continued. Vector population may also be recorded.

	Dr. V.K. Satya Assistant Professor (Plant Pathology)	
	AICRP/PBG/CBE/MUL/014 AICRP on MULLaRP (Plant Pathology) January 2015 to December 2019 Dr. T.K.S. Latha Assistant Professor (Plant Pathology)	The project may be continued. The disease scoring scale may be given for all the diseases.
	EXTERNALLY FUNDED PROJECTS	
	DST/CPPS/VBN/PAT/2016/R001 Probing the seed borne/transmission nature of yellow mosaic virus affecting major grain legumes and devising integrated management strategy July 2015 to June 2018 Dr. V.K. Satya Assistant Professor (Plant Pathology)	The project may be continued.

d. General Remarks

- All the plant protection scientists are requested to record the pest/disease incidence/intensity with vector population and virus disease severity in all their experiments.
- All survey data should go with GPS co-ordinate.

e. Action plan 2016-2019

AGRICULTURAL ENTOMOLOGY

Thrust Areas

1. Ecological engineering techniques
2. Pod borer complex problem in pulses
3. Bruchid problem during storage
4. Eco-friendly management of insect pests

Action Plan 1

Monitoring of incidence of major insect pests of redgram, blackgram and greengram			
Theme leader	**Dr. V.R. Saminathan, Asst. Professor (Entomology), NPRC, Vamban**		
Activity	**Name of the Scientist and Centre**	**Observations to be recorded**	**Deliverables/expected out come**
Monitoring of incidence of important insect pests	**Vamban** Dr. V.R. Saminathan (Blackgram) Dr. Zadda Kavitha (Redgram) **Coimbatore** Dr.D.Rajabaskar (Redgram and greengram)	• Incidence of sucking pests, pod borers, pod fly and pod bugs has to be monitored throughout the crop period in both kharif and rabi seasons. • Insect incidence levels have to be correlated with the weather parameters.	Forecasting of the time of maximum incidence levels of important insect pests of redgram, blackgram, greengram

Action Plan 2

Evaluation of ecological engineering techniques through habitat manipulation for the management of insect pests in blackgram, greengram and redgram					
Theme leader	**Dr. V.R. Saminathan, Asst. Professor (Entomology), NPRC, Vamban**				
Activity	**Name of the Scientist and Centre**	**Year 2017-18**	**Year 2018-19**	**Year 2019-20**	**Deliverables/ expected out come**
Management of insect pests in blackgram, greengram and	**Vamban** Dr. V.R. Saminathan (Blackgram) Dr. Zadda Kavitha (Redgram)	Evaluation of the following organic amendments in blackgram, greengram	The best ecological engineering methods identified in first and second	The result of the integrated trial of best ecological engineering methods validated during	Best border crop and organic amendment

redgram through habitat manipulation	**Coimbatore** Dr. D.Rajabaskar (Redgram and greengram)	and redgram on insect pest incidence and abundance of natural enemies. 1.Decomposed farm yard manure (12 t/ha) or 2.Vermicompost (2.5 t/ha) 3.Neem cake (250 kg/ha)	years will be integrated with IPM module and validated.	2018-19 will be reconfirmed.	combination that suppresses the insect pest population and increases the natural enemy population will be known
		Components Evaluation of non pulse crops as border crop in redgram/blackgram/greengram ecosystem to enhance natural enemies and to suppress the pest incidence. Redgram – Maize, bajra, sorghum, marigold and ocium Blackgram and greengram - Maize, bajra, sorghum, gingelly, ragi and coriander • During vegetative stage, observations are to be made on the incidence of sucking insect pests, pod borers, pod fly and pod bugs in redgram, blackgram, greengram and mochai. • Observations have to be taken on the abundance of natural enemies in various cropping systems. • In the harvested pods, per cent damage due to pod borers has to be recorded separately for each insect. • Pest defender ratio, preference ratio of pests and occurrence ratio of natural enemies have to be estimated.			

Action plan 3

Identification of resistant sources for major insect pests in redgram, greengram and blackgram			
Theme Leader	**Dr. V.R. Saminathan, Asst. professor (Entomology), NPRC, Vamban**		
Activity	**Name of the Scientist and Centre**	**Observations to be recorded**	**Deliverables/expected out come**
Field screening of TNAU entries, AICRP entries, AVT, IVT, MLT and ART entries	**Vamban** Dr. V.R. Saminathan Dr. Zadda Kavitha **Coimbatore** Dr. D.Rajabaskar	• Observations have to be taken in the field on the incidence of pod borers from flowering in the genotypes of redgram, blackgram and greengram under screening. • In the harvested pods, per cent damage due to pod borers has to be recorded separately for each insect. • Based on the standard scoring system entries have to be fitted in different categories of resistance.	• Identification of promising resistant entries to major insect pests in redgram, greengram and blackgram. • Most promising/multiple resistant entries will be forwarded to breeders for further crossing purpose.

Action Plan 4

Studying mechanisms of resistance in redgram/greengram/blackgram resistant lines for major insect pests					
Theme leader	**Dr. V.R. Saminathan, Asst. Professor (Entomology), NPRC, Vamban**				
Activity	**Name of the Scientist and Centre**	**Year 2017-18**	**Year 2018-19**	**Year 2019-20**	**Deliverables/ expected out come**
Exploring mechanisms of resistance in the identified resistant entries	**Vamban** Dr. V.R. Saminathan Dr. Zadda Kavitha	Study of mechanisms of resistance in *Helicoverpa* resistant	Study of mechanisms of resistance in pod fly	Study of mechanisms of resistance in the	Mechanisms of resistance to important

(redgram/greengram/blackgram) for *Maruca*, *Helicoverpa* and pod fly, *M. obtusa*.	(Biophysical mechanisms of resistance) **Coimbatore** Dr. D.Rajabaskar (Biochemical mechanisms of resistance)	lines of redgram and *Maruca* resistant lines of blackgram.	resistant lines of redgram and *Maruca* resistant lines of blackgram.	identified redgram and blackgram resistant lines.	insect pests of pulses
		• Trichome length, trichome density, pod length, pod width and pod wall thickness have to be measured in the resistant entries to pod borers and pod fly. • Protein and transcript profile have to be estimated in the identified resistant entries.			

Action Plan 5

Validation of integrated management modules against major insect pests and diseases of redgram and blackgram			
Theme Leader	**Dr. V.R. Saminathan, Asst. Professor (Entomology), NPRC, Vamban**		
Activity	**Name of the Scientist and Centre**	**Observations to be recorded**	**Deliverables/ expected out come**
IPM module: **Redgram** • Seed treatment with *Bacillus subtilis* CcB 7 @ 10 g/kg seed + soil application @ 2.5 kg/ha at 30 DAS. • Intercropping with blackgram/ greengram • *H.armigera* pheromone traps @ 12/ha • Bird perches @ 50/ha	**Vamban** Dr. V.R. Saminathan Dr.V.K. Satya (Blackgram) **Coimbatore** Dr. D.Rajabaskar Dr. E.Rajeswari (Redgram)	• Observations have to be recorded on the incidence of insect pests and diseases in both IPDM and non IPDM modules. • Incidence of pod borers has to be recorded from flowering in the field in both IPDM and non IPDM modules in redgram and	Economic and eco-friendly IPDM modules

• Release of *T.chilonis* @ 5 cc/ha • NSKE 5% spray • Need based application of insecticides/fungicides **Blackgram** • Seed treatment with carbendazim • *H.armigera* pheromone traps @ 12/ha • Yellow sticky traps @ 25/ac • Release of *T.chilonis* @ 5 cc/ha • NSKE 5% spray • Need based application of insecticides/fungicides		blackgram. • At harvest, per cent damage due to pod borers has to be recorded in the harvested pods for each insect. • C:B ratio has to be calculated for both IPDM and non IPDM components.	

PLANT PATHOLOGY

Thrust areas

1. Screening and identification of resistance sources for major diseases
2. Etiology and mode of spread of leaf crinkle disease in blackgram and greengram
3. Integrated Disease Management
4. Evaluation of new molecules.

Action Plan (Time Line: Three years 2017-2020)

Theme No 1	**Identification of resistant sources for major diseases in redgram, Blackgram and greengram**				
Theme leader	**Dr. V.K. Satya, Asst. Professor (Plant Pathology), NPRC, Vamban**				
Activity	**Name of the scientist and centre**	**2017-18**	**2018-19**	**2019-20**	**Deliverables/expected out come**
Field screening of TNAU entries , AICRP entries, AVT , IVT, MLT, ART entries	**Vamban** Dr. V.K. Satya **Coimbatore**	• Record the incidence of all the	Identified resistant entries from the previous	The same entries will be screened at both locations	Multiple disease resistant entries.

	Dr. E. Rajeswari (Redgram) Dr. T.K.S. Latha (Blackgram and greengram)	diseases and identify the resistant entries from both Vamban and Coimbatore. • Correlation analysis of diseases with weather parameters	year will be screened at both the locations.	for further confirmation.	
Confirmation of resistance in field screened entries through artificial screening– Blackgram and greengram		Identified resistant entries from the previous year will be screened under artificially. Observations • Percent disease incidence • Type of symptom		The resistant entries will be registered at NBPGR.	

Theme No 2	**Confirmation of resistance in field screened entries through whitefly transmission against MYMV– Blackgram and greengram**				
Theme leader	**Dr. V.K. Satya, Asst. Professor (Plant Pathology), NPRC, Vamban**				
Activity	**Name of the**	**2017-18**	**2018-19**	**2019-20**	**Deliverables/expected**

	scientist and centre				out come
Artificial screening of field resistant TNAU entries , AICRP entries, AVT , IVT, MLT, ART entries	Vamban: Dr. V.K. Satya Coimbatore: Dr. T.K.S. Latha	Identified resistant entries from the field will be screened artificially.	Identified resistant entries from the field will be screened artificially.	Identified resistant entries from the field will be screened artificially.	MYMV resistant donors **Observations** • Percent disease incidence • Type of symptom

Theme No 3	**Identification of the etiological agent and spread of leaf crinkle disease in blackgram and greengram**				
Theme leader	**Dr. V.G. Malathai, Adjunct Faculty, Dept. of Plant Pathology, TNAU, Coimbatore**				
Activity	**Name of the scientist and centre**	**2017-18**	**2018-19**	**2019-20**	**Deliverables/expected out come**
Identification of virus and mode of spread	Vamban: Dr. V.K. Satya Coimbatore: Dr. T.K.S. Latha Dr. Raveendran	Identification of vector for leaf crinkle disease	Molecular characterization of virus through NGS	Molecular characterization of virus through PCR/ EM	Virus identified for leaf crinkle disease

Theme No 4	**Characterization of causal agent of pigeonpea sterility mosaic disease in Tamil Nadu**				
Theme leader	**Dr. E. Rajeswari, Asst. Professor (Plant Pathology), Dept. of Pulses, TNAU, Coimbatore**				
Activity	**Name of the scientist and centre**	**2017-18**	**2018-19**	**2019-20**	**Deliverables/expected out come**

Characterization of pigeonpea sterility mosaic virus	Dr. E. Rajeswari	Characterization of the virus isolate either by deep sequencing of RNA or by PCR	Development of diagnostics to identify and detect new variants or new viruses	Molecular confirmation of virus through nucleo diagnostics	Virus identified for pigeonpea sterility mosaic disease

The etiological agent of pigeonpea sterility mosaic disease has been identified as a virus species pigeonpea sterility mosaic virus belonging to the new genus EMARAVIRUS with –sense ss RNA as genome. The primers designed on the basis of ICRISAT isolate did not yield amplicons suggesting considerable variation in the virus involved. Therefore the work plan is suggested.

Work load of the individual scientists

Agricultural Entomology

Sl. No	**Scientists**	THEME 1	THEME 2	THEME 3	THEME 4	THEME 5
		Monitoring of incidence of major insect pests of redgram, blackgram and greengram	Evaluation of ecological engineering techniques through habitat manipulation for the management of insect pests in blackgram, greengram and redgram	Identification of resistant sources for major insect pests in redgram, greengram and blackgram	Studying mechanisms of resistance in redgram/greengram/ blackgram resistant lines for major insect pests	Validation of integrated management modules against major insect pests and diseases of redgram and blackgram

		Incidence of sucking pests, pod borers, pod fly and pod bugs in blackgram	Incidence of sucking pests, pod borers, pod fly and pod	Incidence of sucking pests, pod borers, pod fly and pod bugs in redgram and	Evaluation of the organic amendments	Identification of best ecological engineering methods	Validation of IPM modules	Identification of resistant sources for major insect pests in redgram, greengram and blackgram	Biochemical and morphological mechanisms of resistance	Biochemical mechanisms of resistance	Incidence of insect pests	Incidence of diseases
1	Dr.V.R. Saminathan	√			√	√	√	√	√		√	
2	Dr.Zadda Kavitha		√		√	√	√	√	√		√	
3	Dr.D. Rajabaskar			√	√	√	√	√		√		√
4	Dr.E. Rajeswari											√
5	Dr.V.K.Satya											√

Plant Pathology

Sl. No	**Scientists**	THEME 1		THEME 2	THEME 3		THEME 4
		Identification of resistant sources for major diseases in redgram, Blackgram and greengram		Confirmation of resistance in field screened entries against MYMV	Identification of the etiological agent and spread of leaf crinkle disease		Characterization of causal agent of pigeonpea sterility mosaic disease in Tamil Nadu
		Identification of resistant sources for major diseases in redgram	Identification of resistant sources for major diseases in Blackgram and greengram	Artificial screening through whitefly transmission in blackgram and greengram	Molecular characterization through NGS	Identification of vector and molecular characterization through PCR	Characterization of causal agent of pigeonpea sterility mosaic disease
1	Dr.E. Rajeswari	√					√
2	Dr.T.K.S. Latha		√	√	√		
3	Dr.V.K.Satya	√	√	√		√	
4	Dr.Raveendran				√		

NATIONAL PULSES RESEARCH CENTRE, VAMBAN AND DEPT. OF PULSES, TNAU, COIMBATORE

Activities	June-August 2017	September – November 2017	December 2017 – February 2018	March –May 2018
Seed dispatch for ART/MLT and Field preparation, layout and sowing				
Kharif – 2017	√√			
Rabi 2017-18		√√		
Rice fallow 2018			√√	
Summer 2018				√√
Field observation				
Kharif – 2017	√√			
Rabi 2017-18		√√		
Rice fallow 2018			√√	
Summer 2018				√√
Front Line Demonstration	√√	√√	√√	
Conducting of OFT (Crop Management and Crop Protection)	√√	√√	√√	√√
Pest and disease monitoring	√√	√√	√√	√√
Proposing cowpea culture VCP 09-013 for release during 2017		√√	√√	
Compilation and preparation of report for CSM – 2018				√√
AICRP - Annual group Meet 2018 participation				√√

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