Outcomes and Evaluation of Krishi Vigyan Kendra Scheme during XII Plan (2012-13 to 2016-17)

Name of KVK: ICAR-KVK, Ramanathapuram

1. **Outputs**

1.1 a) Research publications (only those in the indexed journals)

Sl. No.	Authors	Year	Title	Journal with volume, number & page number	NAAS Rating	Impact factor
-	-	-	-	-	-	-

b) Popular articles

Sl. No.	Authors	Year	Title	Journal with volume, number & page number
1.	J. Ramkumar and R. Durai SIngh	2013	Management of rice leaf folder	The Hindu, Science & Technology, Agrl. Column
2.	J. Ramkumar and R. Durai SIngh	2014	Management of red hairy caterpillar in groundnut	The Hindu, Science & Technology, Agrl. Column
3.	Dr.V.Meenakshi, V. Ganesaraja and G.Guru Meenakshi	2014	Colouring – A future Threat to Human Health	Kisan world .41(4)2014.
4.	Rajamanickam, C. and L. Jeeva Jothi	2015	Influence on nutrients and growth regulators for off season production of coriander leaf var. CO-4	Souvenir National Seminar on Recent Technologies for Higher Production of Horticultural Crops held at Adhi Parasakthi Agricultural College, Kalavai, 1st October, 2015, pp. 134 – 136.
5.	Rajamanickam, C. and L. Jeeva Jothi	2015	Influence of biofertilizers and biocontrol agent for off season leaf production of leafy coriander	Research abstract presented in SYMSAC – VIII Towards 2050 – Strategies for Sustainable Spices Production organized by Indian Society of Spices, Kozhikode and TNAU, Coimbatore at TNAU, Coimbatore from 16 – 18, December 2015, p. 139 -140.

6.	Rajamanickam, C., C. Ravindran, Chelviramessh, S. Kamalasundari and T. Rangaraj.	2016	Performance of different tuberose varieties in Madurai District of Tamil Nadu	Abstract presented at 1st KVK Symposium Zone VIII organized by ICAR-ATARI, Bengaluru and UAS, Dharwad on 21-22 January, 2016, pp.89.
7.	Chelviramessh, S. Kamalasundari, C. Rajamanickam, S. Prabu, K.P. Vanetha, P.K. Padmanathan and T. Rangaraj	2016	Mechanical seeding or rice and dhaincha as contingent plan for sustainable rice production in Periyar Vaigai command area of Madurai district of Tamil Nadu	Abstract presented at 1st KVK Symposium Zone VIII organized by ICAR-ATARI, Bengaluru and UAS, Dharwad on 21-22 January, 2016, pp.48
8.	S. Kamalasundari, Chelviramessh, C. Rajamanickam and T. Rangaraj	2016	Integration of primary and secondary processing of millets for livelihood enhancement	Abstract presented at 1st KVK Symposium Zone VIII organized by ICAR-ATARI, Bengaluru and UAS, Dharwad on 21-22 January, 2016, pp.80.
9.	Chelviramessh, S. Kamalasundari, C. Rajamanickam, S. Prabu, K.P. Vanetha, P.K. Padmanathan and T. Rangaraj	2016	Mechanical seeding or rice and dhaincha as contingent plan for sustainable rice production in Periyar Vaigai command area of Madurai district of Tamil Nadu	An abstract presented at 1st KVK Symposium Zone VIII organized by ICAR-ATARI, Bengaluru and UAS, Dharwad on 21-22 January, 2016, pp.48.
10.	J. Ramkumar and I. Seegan Paul	2016	Bud rot management in coconut	Dinamalar daily, 13.01.2016
11.	C. Rajamanickam, C. and L. Jeeva Jothi	2015	Evaluation of tamarind (*Tamarindus indica* L.) genotypes for growth, yield and quality characters.	Research abstract presented in International Conference on Under Utilized Crop Plants (ISUPS) – 2015 jointly organized by TNAU, Coimbatore and ISHS, Belgium (Ed. Ravindran et. al. 2015) on 5-8, August 2015 at Madurai, Tamil Nadu, pp. 136.
12.	C. Rajamanickam, C. and S. Anbu	2015	Standardization of vegetative propagation techniques in aonla (Emblica officinalis G.)	Research abstract presented in International Conference on Under Utilized Crop Plants (ISUPS) – 2015 jointly organized by TNAU, Coimbatore

				and ISHS, Belgium (Ed. Ravindran et. al. 2015) on 5-8, August 2015 at Madurai, Tamil Nadu, pp. 347.
13.	Rajamanickam, C., R. Rajasekaran, J. Ramkumar and K. Saravanan.	2017	Front Line Demonstration on Yield enhancement in cluster bean var. MDU -1 in Ramanathapuram District of Tamil Nadu	An abstract presented at 2nd KVK Symposium Zone VIII organized by ICAR-ATARI, Bengaluru and TNAU, Coimbatore on 7 – 8, March, 2017, pp.11- 12.
14.	Rajamanickam, C.	2017	Impact of vegetable special on increasing yield of chilli in Madurai District of Tamil Nadu	An abstract presented at 2nd KVK Symposium Zone VIII organized by ICAR-ATARI, Bengaluru and TNAU, Coimbatore on 7 – 8, March, 2017, pp.57 – 58.
15.	Rajamanickam, C.	2017	Management of bulbrot of onion through biocontrol agents.	An abstract presented at 2nd KVK Symposium Zone VIII organized by ICAR-ATARI, Bengaluru and TNAU, Coimbatore on 7 – 8, March, 2017, pp.101- 102.
16.	J. Ramkumar, C. Rajamanickam, N. Sathiah and S. Arokiamary	2017	Management of mealybugs in cotton	Dinamalar on 27.06.2017
17.	C. Rajamanickam, J. Ramkumar and S. Arokiamary	2017	Success story of cluster bean farmer	Uzhavarin Valarum Velanmai 9 (1) : 38 - 40.

1.2 a) Books

Sl. No.	**Authors**	**Year**	**Title**	**Publisher's name and address**	**publisher (recognized or local)**
1.	R. Duraisingh and J. Ramkumar	2014	Sustainable Sugarcane Initiatives (SSI)	-	Local
2.	Santhasheela, M., A. Arulmozhi, M. Saravanan, J. Ramukumar, S. Arokiamary and I. Seeganpaul	2015	Kharif munparuva kaiyedu	-	Local
3.	R. Duraisingh and J. Ramkumar	2015	Sustainable Sugarcane Initiatives (SSI)		Local

4.	J. Ramkumar, C. Rajamanickam, R. Rajasekaran, S. Arokiamary, A. Arulmozhi, N. Sathiah, K. Saravanan and I. Seeganpaul.	2017	Integrated pest management in dryland agricultural crops	-	Local
5.	S. Arokiamary, J. Ramkumar, R. Rajasekaran, A. Arulmozhi, C. Rajamanickam, I. Seeganpaul, K. Saravanan	2017	Value addition in millets	-	Local
6.	J. Ramkumar, R. Rajasekaran, C. Rajamanickam, A. Arulmozhi, S. Arokiamary and N. Sathiah	2017	A Ready Recknor on Insecticides	-	Local

b) Other publications (Book chapters with ISBN no. and without ISBN no. / Leaflets / Pamphlets / Folders etc)

Sl. No.	**Authors**	**Year**	**Title**
1.	C. Rajamanickam, C. and L. Jeeva Jothi	2016	**Book chapters with ISBN number** Influence of organic fertilizers and growth regulators for growth and yield of leafy coriander Cv. Co -4. Scientific Agriculture in Tamil organized by Anbil Dharmalingam Agricultural College and Research Institute, Trichy. PP. 174 – 178. (Editors: K. Ramasamy, P. Pandiyarajan, M. Jawaharal, S. Sekar amd M. Manimegalai).
2.	Vani, V., C. Rajamanickam and J. Rajangam	2016	Preparation of scandy in manilla tamarind. Scientific Agriculture in Tamil organized by Anbil Dharmalingam Agricultural College and Research Institute, Trichy. PP. 1015 – 1017. (Editors: K. Ramasamy, P. Pandiyarajan, M. Jawaharal, S. Sekar amd M. Manimegalai).
3.	C. Rajamanickam and S. Anbu	2016	Standardization of vegetative propagation techniques in aonla. In: Agronomical practices in Organic Agriculture at Coimbatore. Pp. 92 – 97 (Editors: s. Mahimairaja, A. Arunachalam, R. Brindavathi, A. Kalaisekar, R. Parimaladevi).
Pamphlets			
1.	J.Ramkumar, M.Shanthasheela, Arokiamary.S and Arulmozhi.R	2015	Disease management in coconut

2	J.Ramkumar, Arulmozhi.R and Arokiamary.S,	2015	IDM in cotton
3	Seeganpaul.I, J.Ramkumar, Arulmozhi.R and Arokiamary.S,	2015	Mini portable Sprinkler
4	M.Shanthasheela, Seeganpaul.I and Arulmozhi.R	2015	Usage of farm pond
5	M.Shanthasheela, Seeganpaul.I and Arulmozhi.R	2015	Concentrated feed for livestocks
6	Saravanan.K, Ramkumar.J and Arulmozhi.R	2015	Paddy varieties suitable for rainfed condition and drought mitigation technologies
7	Ramkumar.J , Arulmozhi.R	2015	Summer ploughing
8	M.Shanthasheela, Seeganpaul.I and Arulmozhi.R	2015	Silage making
9	J.Ramkumar, , Arokiamary.S and Arulmozhi.R	2015	Barnyard millet cultivation in rainfed lands
10	M.Shanthasheela , J.Ramkumar, , and Arulmozhi.R	2015	Azolla – Feed for cattle
11	M.Shanthasheela , J.Ramkumar, , and Arulmozhi.R	2015	Terrace garden
12	J.Ramkumar, Arokiamary.S, C.Rajamanickam and Arulmozhi.R	2016	Farm Pond Kuthiraivali for rainfed track Drought mitigation technologies and paddy variety suitable for rainfed track Mini portable sprinkler Pink Pigmented Facultative Micorrhizae for drought mitigation in paddy Nursery Management Practices Chilli Varieties Summer Ploughing Concentrate feed management for livestocks Agronomic practices in cotton
13	R. Arulmozhi, S. Arokiamary, J. Ramkumar and C. Rajamanickam	2016	Barnyard millet cultivation in rainfed lands

14	R. Arulmozhi, J. Ramkumar and C. Rajamanickam	2016	Disease management in nursery
15	R. Arulmozhi, J. Ramkumar and C. Rajamanickam	2016	Drought mitigation technologies in paddy (NFSM)
16	C. Rajamanickam, R. Arulmozhi, I. Seegan Paul and R. Rajasekaran	2016	Chilli varieties
17	K. Saravanan, I. Seegan Paul, R. Arulmozhi and C. Rajamanickam	2016	Summer Ploughing
18	J. Ramkumar, S. Arokiamary and C. Rajamanickam	2017	Damage of parthenium and its control measures

1.3 Patents (Title, filing status) : Nil

Sl. No.	**Title**	**Filing status**
	-	-

1.4 Products (Varieties, hybrids, agrochemicals, ag-machinery etc.; status – in AICRP trials / released / registered with PPV&FRA) : Nil

Sl. No.	**Name of crop**	**Name of farmers' varieties/germplasms registered with PPV&FRA**
	-	-

1.5 Human resource development (masters and doctoral students, scientists, skill development of farmers, rural youth, women etc.)

Parameters	**Numbers**
Number of masters and doctoral students guided	-
Number of Scientists including ARS Probationers trained	Six numbers of ARS Scientists were trained under Field Experience Training programme at KVK Ramanathapuram through NAARM, Hyderabad during 2016-17.

1.6 Technology Processes

a) Technology assessed

Sl. No.	Name of technology assessed
1	Assessment of composite package for Sodic soils in Rice
2	Assessment of high yielding rice varieties for rainfed ecosystem
3	Assessment of flower productivity during off season in jasmine
4	Assessment of varietal performance of Annual Moringa
5	Assessment of GRAND supplement in cross bred dairy cows
6	Assessment of different management strategies to mitigate drought in paddy
7	Assessment of insecticide for the management of rice leaf folder
8	Assessment of rice hybrids for higher yield and alternative to BPT 5204
9	Intercropping with moringa & cowpea seeds
10	Assessment of Redgram as intercrop in millet based cropping system
11	Performance assessment of Red gram varieties and cooking quality for value addition
12	Assessment of mechanical thinning methods in semidry rice
13	Assessing the performance of weeders in reducing the drudgery
14	Rotary dibbler for sowing rainfed groundnut
15	Assessment of Rice varieties to replace BPT 5204
16	Assessment of cotton varieties for drought and biotic stress
17	Assessment of fine grain rice varieties in Ramanathapuram
18	Evaluation of Roto till Seed Drill For Sowing Semi Dry Paddy
19	Assessment of Cluster Bean varieties
20	Assessment of Suitable Moringa Varieties
21	Assessment of Bhendi hybrids tolerant to Yellow Vein Mosaic Virus disease
22	Assessment of High density planting design under drip irrigation system for chilli crop
23	Assessment of rice varieties tolerant to sodic soils
24	Assessment of blast resistant ragi varieties

b) Technology refined : Nil

Sl. No.	Name of technology refined	Package of refined technology
	-	-

1.7 Policy inputs (recommendations made, participation in policy decisions etc.); extension models developed; success stories based on extension information.

a) Ten major recommendations of Zonal Workshops/Regional Committees' Meetings which have implications for policy formulation for frontline extension in general and technology application in particular.

- Promoting seed drill sowing to minimize the weed, pest and disease infestation in direct sown rice.
- Soil test based nutrient application.
- Cultivation of short duration rice varieties to escape from the terminal stress (replacement of BPT 5204).
- Use of Mine Portable Sprinkler for effective utilization of stored water in farm pond.
- Spraying of Pink Pigmented Facultative Methylotrophs (PPFM) to mitigate drought.
- Use of MN mixtures for rainfed rice and coconut to improve the productivity.
- Cultivation of fodder crops for green supplement.
- Adoption of eco-friendly pest management practices (coco trap for coconut Rhinoceros beetle and Red palm weevil ; use of pheromone traps and yellow sticky traps)
- Establishment of multi-crop solar dyer for enhancing uniform dryness of the produce, thereby to get higher price in the market.
- Value addition in minor millets.

b) Extension models developed

Sl. No.	Title of extension models developed	Brief description of extension models developed
1.	Farmers SMS Portal	Agro advisory services will be sent through SMS on local language (Tamil) to the farmers of Ramanathapuram District. The total number of farmers enrolled were 876.
2.	Collaboration with Private sectors	The KVK have the collaboration with private sectors *viz*., Reliance Foundation and Mohamed Sathak Trust, Ramanathapuram. They utilize the KVK scientist as resource person for the diagnostic field visit, farmer-scientist interaction meet and TV programmes to disseminate the technologies.

c) Success stories having impact on large area and large number of farmers

Sl. No.	Title of success stories	Brief description of success stories
1.	Milky mushroom cultivation	Mr. A. Ramu residing at Usilanakotti village of Tiruvadanai block of Ramanathapuram district having 7 acres of land under rice cultivation. For effective utilization of paddy straw he had undergone mushroom cultivation training at KVK, Ramanathapuram and actively involved in milky mushroom production. Later, he also trained by KVK for spawn production. At present he is producing 5-8 kg of milky mushroom per day and selling at the rate of Rs.150/kg. The KVK has developed him as a master trainer in mushroom production in the district. His

		success story also published in Dinamalar daily and Uzhavarin Valarum Velanmai by the KVK Ramanathapuram. By selling the spawn also he is getting sizeable income and he also act is consultant for establishing new milky mushroom shed.
2.	Successful woman entrepreneur	Mrs. M. Maragatham, a successful and proactive women farmer from Pukkulam village of Thiruppulani block had adopted seed drill sowing in her own farm during 2007. Based on the impact created by Mrs. Maragatham, nearly 80% of farmers in the Pukkulam village following seed drill sowing. There by the cost incurred for weeding and plant protection is minimized. Similarly, KVK, Ramanathapuram took mass spraying PPFM under NADP scheme as drought mitigation strategy in paddy crop during 2014-15. Mrs. Maragatham, took a lead in spraying of PPFM in Thirupulani Block and helped in covering 250 acres. She actively participated in PPFM spray which in turn made her a role model in the village. To replace the medium duration paddy varieties, KVK took FLD programme in her field and she cultivated short duration rice CO (R) -51 and got a yield of 2142 kg /acre and earned a gross income of Rs.38760 and net income of Rs.24260. Through INSIMP Scheme, KVK installed small scale millet Dehuller, Destoner and pulverizer during 2014 at her home. Previously farmers of that village, sold their harvested barnyard millet as such without processing at got lowest rate for their produce (about Rs.15/ kg). After installation of the INSIMP machineries the villagers processed their produce into rice which fetches higher price (Rs.65 /kg) in the market.
3.	Value addition	Mr.Mohammes Igbal S/o. Ahmed Ibrahim from Panaikulam approached KVK, Ramanathapruam and gained knowledge on preparation of spice mixes, packing and labeling. Then he prepared Spice mix exclusive for fish on their own in small scale by engaging his family members (3 nos) and 3 labours. He got packing and labeling licence from department of labour law and Obtained licence from department of Food and Drug Administration act for selling quality product. His product got better response in the market. During 2015, KVK facilitated for loan towards purchasing of machineries to promote his business in large scale. Now, he is producing 300 kg of spice mix / month and he is selling at the rate of Rs.160 /kg of fish masala.
4.	IFS farmer	Mr. T. Siva is an diploma Engineer in Computer Science. He was worked in Dubai from 2000-2010. After returned to India, he started farming in 3.5 acres land in consultation with KVK. He attended many trainings at KVK, Ramanathapuram *viz*., Integrated Pest Management for vegetables, ICM for coconut, production of vermicompost, integrated farming system and azolla cultivation. He had 25 numbers of Tall X Short coconut trees in his farm. He is harvesting

		the nuts six times in a year and getting 3000 nuts. He is also cultivated Guinea grass in the available space in the coconut grooves. He kept bee hives in the coconut & mango garden to increase pollination and sold the honey for Rs.10,000 per year. He had mango orchard in 80 cents. He cultivated greens in the available space. In a year he earned Rs.12,000 / year from greens cultivation. He cultivated seasonal pandhal vegetables in 70 cents. Year around in vegetable cultivation he earns Rs.4650/ month. He had 2 local breed cows, 16 local breed goats, 10 turkeys, 50 hens and 10 cocks. From these enterprised, he is getting Rs.60,000 / year . He also had one farm pond and by selling the fishes he earns Rs.10,000 / year

2. Impacts (give details, if required, in annexures)

2.1 Region of benefit: Tiruvadanai, Thiruppullani, Ramanathapuram and Mandapam blocks

2.2 Impact of outputs on production

a) Impact of outputs on crops

Sl. No.	Name of crop	Technological Intervention	Productivity before intervention (qtl./ha)	Productivity after intervention (qtl./ha)	% increase in productivity	Qualitative & quantitative impact on farmers (for example Cost saving, increase in net income, impact on livelihood and gender, horizontal spread of technology, environment and sustainabilityetc.)
1.	Paddy	Assessment of Rice varieties to replace BPT 5204	39.62	40.64	3.6 %	Net returns obtained from Co (R)51 of Rs.34199 whereas BPT 5204 was Rs.34051 with BCR is
2.	Paddy	Assessment of fine grain rice varieties in Ramanathapuram	31.22	48.60	35.8 %	Net returns obtained from var. NLR 34449 of Rs.32590 and BCR 1.9 whereas BPT 5204 obtained net returns of Rs.17124 with BCR is 1.5
3.	Cluster bean	Assessment of Cluster Bean varieties	90.2	132.2	32.0 %	Net returns obtained from var. MDU-1 of Rs.43950 and BCR 2.94 whereas local check obtained net returns of Rs.15490 with BCR is 1.84
4.	Moringa	Assessment of Suitable Moringa Varieties	125.0	202.5	39 %	Net returns obtained from var. PKM-1 of Rs.40750 and BCR 3.03 whereas local check obtained net returns of Rs.17500 with BCR is 1.87
5.	Bhendi	Assessment of Bhendi hybrids tolerant to Yellow Vein Mosaic Virus disease	54.72	91.10	40 %	Net returns obtained from var. Co(Bh) 4 of Rs.81390 and BCR 3.19 whereas local check obtained net returns of Rs.40136 with BCR is 2.29

b) Impact of outputs on livestock

Sl. No.	Name of livestock species	Technological Intervention	Unit of productivity	Productivity before intervention	Productivity after intervention	% increase in productivity	Qualitative & quantitative impact on farmers (for example Cost saving, increase in net income, impact on livelihood and gender, horizontal spread of technology, environment and sustainability etc.)
1.	Dairy cow	Assessment of GRAND supplement in cross bred dairy cows	lit/animal/day	6.5	6.9	10 %	Milk yield increased up to 10% when GRAND supplement was given with green and concentrated feed.

c) Impact of outputs on other enterprises : Nil

Sl. No.	Name of enterprise	Technological Intervention	Unit of productivity	Productivity before intervention	Productivity after intervention	% increase in productivity	Qualitative & quantitative impact on farmers (for example Cost saving, increase in net income, impact on livelihood and gender, up-scaling& out-scaling of enterprise, environment and sustainabilityetc.)
-	-	-	-	-	-	-	-

3. Please also provide point wise response on the followings.

3.1 Whether funding allocation was sufficient to meet the objectives?

Yes, sufficient

3.2 Whether interactions in multi-institutional projects were optimal?

Yes

3.3 Whether funding was released on time?

Yes

3.4 Any impediments in the utilization of funding?

No

3.5 Was there an unrecognized need of interaction with non-ICAR institutes or private companies?
No

3.6 Were there any leads from the scheme – that are currently being followed?
No

3.7 Any suggestions on better implementation of schemes?
For better implementation of the schemes supporting staff may be needed.

3.8 Areas that need high attention in the new schemes?
Value addition in minor millets

Sd/.., Programme Co-ordinator
KVK – Ramanathapuram