Biodata of the Scientist

Division/Section: Division of Crop Production

A.Personal information

1. Name (With Title): **Dr. (Mrs.) Suja G**.

1a. Qualification: B. Sc (Ag), M.Sc.(Ag) in Agronomy, Ph.D in Agronomy

2. Designation: Principal Scientist

3. Address (Personal): T.C.24/242(2), "C Sharp B Flat", Opposite Thycaud L.P. School, Thycaud, Thiruvananthapuram- 695 014, Kerala, India

4. Phone Numbers:

(a) Residence: 91-0471-2115002 (b) Intercom: 91-0471-2598551-146 (c) Mobile: 91-9847248697

5. Email: sujagin@yahoo.com

6. Countries visited: Republic of Korea and China

B. Professional information

1. Area of specialization: Organic farming of tuber crops, Resource management of tuber crops, Cropping systems research

2. Area of interest: Alternative sustainable management practices like organic farming

3. Number of institute projects completed (Add list): 7

Sl. No.	Status	Project Title	Duration
1.	Project Leader	Resource management for short -duration cassava	2002-2010
2.	Project Leader	Production technology for arrowroot	1996-2001
3.	Associate	Mineral nutrition of aroids	2005-2008
4.	Associate	Cropping systems involving *Dioscorea*	1994-1997
5.	Associate	Low input technology for cassava	2001-2004
6.	Associate	Development of biologically based IDM for cassava mosaic disease	2002-2007
7.	Associate	Standardization of cultural and manurial mrequirements of tannia (*Xanthosoma sagittifolium*)	1995-2001

4. Number of institute projects being handled (Add list): 7

Sl. No.	Status	Project Title	Duration
1.	Project Leader	Organic farming of yams and aroids	2003-2013
2.	Project Leader	Cropping systems involving short-duration cassava and legumes	2010-2015
3.	Associate	Screening K efficient cassava genotypes for industrial and domestic uses	2008-2013
4.	Associate	Studies on production physiology of elephant foot yam	2009-2014
5.	Associate	Studies on water management in tropical tuber crops 1. Elephant foot yam	2012-2017
6.	Associate	Collection, conservation, cataloguing and evaluation of aroid germplasm	2008-2013
7.	Associate	Varietal improvement of cassava for CMD resistance, earliness, high starch and keeping quality	2012-2017

5. Number of externally funded projects completed (Add list): 4

Status	Project title	Total cost	Duration	External funding agency
As Principal Investigator	Validation and popularization of organic farming technology in elephant foot yam	Rs.12.85 lakhs	2008-2010	National Horticulture Mission, Kerala chapter
As Co-Investigator	Integrated nutrient management strategy for tannia (*Xanthosoma sagittifolium* L.)(Schott) with special emphasis on diagnosis of nutritional disorders	Rs. 7.625 lakhs	2008-2011	Kerala State Council for Science, Technology and Environment

As Co-Investigator	Demonstration and popularization of integrated nutrient management practices (INM) involving secondary and micronutrients in cassava	Rs.7.25 lakhs	2008-2010	National Horticulture Mission, Kerala
As Co-Investigator	Technology Assessment and Refinement through Institute Village Linkage Programme	Rs. 28 lakhs	1996-1997	Indian Council of Agricultural Research

6. Number of externally funded projects being handled (Add list): 2

Status	Project title	Total cost	Duration	External funding agency
As Principal Investigator	Development of eco-friendly technologies for quality cassava production and to safe guard soil health and environment	Rs. 23,09,810	2010-2013	Ministry of Environment and Forests, Govt. of India
As Co-Investigator	Soil based plant nutrient management for agro-ecosystems of Kerala	Rs 54.64 lakhs	2010-2012	Kerala State Planning Board

7. Number of students guided for a) Ph.D_____b) M.Phil_____c) M.Sc.: 2

8. Number of students being guided for a) Ph.D: 1 b) M.Phil_____c) M.Sc._____

8.a. information about the students under your guidance

Name of the student	Course undergoing (Ph.D/M.Phil/M.Sc)	Title of the project/Thesis	E-mail address
A.R.Seena Radhakrishnan	Ph.D (Environmental Science)	Evaluation of agronomic, nutritional and socio-economic impacts of organic production of cassava (*Manihot esculenta*) Crantz	seenasanjiv@yahoo.com

9. Information on guide ship

Guide ship for Ph.D/ M.Phil/ M.Sc	University	Subject
Ph.D	Kerala University	Environmental Science

10. Total number of Publications (Add list): 171

Sl. No.	**Publications**	**Number**
1	Research papers	47
2.	Symposia/ Conference	51
3.	Book chapters	6
4.	Technical bulletins	4
5.	Popular articles	27
6	Contributions in Course Manuals	19
7.	Compilations	11
8.	Doordarsan programmes	2
9.	Chief Editor, Journal of Root Crops	4 issues
	Total	**171**

10a. Number of Research papers (Add list): 47

Research Papers in Journals: 47

International Journals (10)

1. **Suja, G.,** Nair, V. M., Saraswathy, P. and Geethakumari, V. L. 2003. Influence of growth-promoting substances on sprouting of white yam (*Dioscorea rotundata)* setts. *Tropical Science,* **43** (4):170-173

2. **Suja, G**., Nair, V. M., Saraswathy, P. and Pushpakumari, R. 2003. Plant population and sett size effects on white yam (*Dioscorea rotundata* Poir.) intercropped in coconut garden. *Tropical Agriculture*, **80** (3): 157-162

3. **Suja, G**., Nayar, T.V.R. and Sreekumar, J. 2005. Growth analysis of *Dioscorea* species. *Tropical Agriculture***, 82** (3): 164-172

4. **Suja G**. 2005. Impact of nutrient management on biomass production and growth indices of white yam (*Dioscorea rotundata* Poir.) intercropped in a coconut plantation in South India. *Tropical Agriculture,* **82** (3) : 173-182

5. Misra, R.S., Nedunchezhiyan, M**.** and **Suja, G.** 2005**.** Commercially cultivated aroids in India**.** *Aroideana*, **28.** pp.174-190

6. Sajeev, M.S., Sreekumar, J., Moorthy, S.N., **Suja, G**. and Shanavas, S. 2008. Texture analysis of raw and cooked tubers of short-duration lines of cassava by multivariate and fractional conversion techniques. *Journal of the Science of Food and Agriculture,* **88:**569-580

7. **Suja, G**., Susan John, K., Sreekumar, J. and Srinivas, T. 2010. Short-duration cassava genotypes for crop diversification in the humid tropics: Growth dynamics, biomass, yield and quality. *Journal of the Science of Food and Agriculture*, **90**:188-198

8. Ravi, V., Ravindran, C. S., **Suja, G.,** James George, Nedunchezhiyan, M., Byju, G. and Naskar, S. K. 2011. Crop physiology of elephant foot yam (*Amorphophallus paeoniifolius* (Dennst.) Nicolson). *Advances in Horticultural Science*, **25**(1):1-14

9. **Suja, G**., Sundaresan, S., Susan John, K., Sreekumar, J. and Misra, R. S. 2012. Higher yield, profit and soil quality from organic farming of elephant foot yam. *Agronomy for Sustainable Development*, **32**: 755-764 (doi 10. 1007/s 13593-011-0058-5)

10. Susan John, K. and **Suja, G**. 2012. Optimum nutrient rate and nutritional constraints in tuber crops growing in Ultisol of India with special emphasis on tannia. *Communication in Soil Science and Plant Analysis,* **43**: 2924–2934

National Journals (37)

1. James George and **Suja, G**. 1995. Rapid seed yam production technology using minisetts : A Review. *Journal of Root Crops,* **21** (1): 1 – 6

2. **Suja, G**. and Nayar, T.V.R. 1996. Water management in tropical tuber crops : A critical evaluation. *Journal of Root Crops,* **22**(2) : 65 – 77

3. Nayar, T.V.R. and **Suja, G**. 1996. Intercropping *Dioscorea* with banana var. Nendran (Musa AAB). *Journal of Root Crops,* **22**(2) : 115 – 120

4. Nayar, T.V.R., Potty, V.P., **Suja, G**. and Byju, G. 1998. Cassava varietal response to low input management. *Journal of Root Crops,* **24**(2) : 111 – 117

5. Anantharaman, S., **Suja, G**. and Asha, K.I. 1999. Indigenous knowledge of cassava farmers and its scientific rationality. *Journal of Root Crops,* **25**(1) : 29-32

6. **Suja, G**., Nayar, T.V.R. and Sreekumar, J. 2000. Dry matter accumulation and partitioning in certain *Dioscorea* species. *Journal of Root Crops,* **26** (2):50-56

7. **Suja, G.**, Nair, V. M., Saraswathy, P. and Sreekumar, J. 2000. Physico – chemical properties of soil as influenced by nutrient management in white yam (*Dioscorea rotundata* Poir.) intercropped in coconut garden. *Journal of Root Crops,* **26** (2): 65-70

8. Nayar, T.V.R., **Suja, G**. and Byju, G. 2001. Effect of plant density and levels of manuring on productivity of banana-*Dioscorea* intercropping system. *Journal of Root Crops,* **27**(1): 176-180

9. **Suja, G**., Nair, V. M. and Sreekumar, J. 2003. Influence of organic manures, nitrogen and potassium on nutrient uptake and nutrient use efficiency of white yam (*Dioscorea rotundata*) intercropped in coconut garden (*Cocos nucifera*). *Indian Journal of Agronomy,* **48**(3)*:*168-171

10. **Suja, G**., Nair, V. M. and Pushpakumari, R. 2003. Influence of plant population and sett size on biomass accumulation and quality of white yam (*Dioscorea rotundata*) intercropped in coconut garden*. Indian Journal of Agronomy,* **48**(4):274-276

11. **Suja, G**., Nair, V. M. and Sreekumar, J. 2003. Impact of nutrient management on light interception, chlorophyll and proline content of white yam (*Dioscorea rotundata* Poir.) intercropped in coconut garden. *Journal of Root Crops,* **29**(2) :27-31

12. **Suja, G**., Nayar, T.V.R. and Ravindran, C.S. 2003. Influence of agronomic practices on starch yield of arrowroot (*Maranta arundinacea* L*.). Journal of Root Crops,* **29**(2):49-52

13. **Suja, G.**, Nair, V. M. and Sreekumar, J. 2003. Effect of nutrient management on quality of white yam (*Dioscorea rotundata* Poir.) intercropped in coconut garden. *Journal of Root Crops,* **29**(1):35-40

14. **Suja, G**., Nair, V. M., Saraswathy, P and Nayar, T.V.R. 2004. Response of white yam intercropped in coconut garden to organic manures, nitrogen and potassium. *Journal of Plantation Crops,* **32** (2): 21-27

15**. Suja,G**., Nair, V. M., Saraswathy, P. and Sreekumar, J. 2004. Implications of organic manure, nitrogen and potassium application in white yam (*Dioscorea rotundata* Poir.) intercropped in coconut garden on nutrient balance of soil. *Annals of Agricultural Research,* **25**(1):76-82

16. Nayar, T. V.R. and **Suja, G**. 2004. Production potential of root and tubers in multiple cropping systems involving plantation crops. *Journal of Root Crops,* **30**(2): 93-100

17. **Suja, G**. and Nayar, T. V. R. 2005. Biomass distribution pattern in arrowroot (*Maranta arundinacea* L.) as influenced by plant density and mulching. *Journal of Root Crops,* **31**(1):28-33

18. **Suja, G**., Nayar, T.V.R. and Potty, V.P. 2005. Response of cassava (*Manihot esculenta* Crantz) to biofertilizers. *Journal of Root Crops,* **31**(2): 100-105

19. **Suja, G**. and Nayar, T.V.R. 2005. Effect of plant density and mulching on growth and yield of arrowroot (*Maranta arundinacea* L.). *Madras Agricultural Journal*, **92**(1-3):149-153

20. **Suja, G**. and Nayar, T.V.R. 2006. Growth analysis of arrowroot (*Maranta arundinacea* L.) under different spacings and mulches. *Journal of Root Crops***, 32**(1): 47-52

21. Santhosh Mithra, V.S., Sajeev, M.S., **Suja, G**., Sheela, M.N. and Vinayaka Hegde. 2005. Tubertech: A database system on tuber crop technologies. *Journal of Root Crops,* **31**(1): 54-56

22. **Suja, G.,**. Nayar, T.V.R. and Ravindran, C. S. 2006. Influence of nutrient management in arrowroot (*Maranta arundinacea* L.) on biomass production, nutrient uptake and soil nutrient status. *Journal of Root Crops***, 32**(2):162-165

23. Edison, S. Ravindran, C.S. and **Suja, G**. 2006. Tropical tuber crops: a popular choice as intercrops in coconut plantations. *Indian Coconut Journal*, **37**(3): 2-7

24. Sreekumari, M. T., Abraham, K., Padmaja, G. and **Suja, G**. 2006. Sree Kiran- An improved taro hybrid. *Journal of Root Crops,* **32**(2): 141-145

25. **Suja, G**., Susan John, K. and Sundaresan, S. 2009. Potential of tannia (*Xanthosoma sagittifolium* L.) for organic production. *Journal of Root Crops,* **35**(1): 36-40

26. Ravi, V, Ravindran, C. S. and **Suja, G.** 2009. Growth and productivity of elephant foot yam (*Amorphophallus paeoniifolius* (Dennst.) Nicolson): an overview. *Journal of Root Crops*, **35**(2): 131-142

27. **Suja, G**., Susan John, K., Ravindran, C. S., Prathapan, K. and Sundaresan, S. 2010. On farm validation of organic farming technology in elephant foot yam (*Amorphophallus paeoniifolius* (Dennst.) Nicolson). *Journal of Root Crops,* **36**(1): 59-64

28. **Suja, G.,** Susan John, K. and Sreekumar. J. 2010. Soil test based nutrient management for short-duration cassava (*Manihot esculenta)*. Analysis of growth, biomass, yield, quality, nutrient uptake and soil nutrient status. *Indian Journal of Agronomy*, **55**(4): 66-72

29. **Suja, G.,** Susan John, K. and Sreekumar J. 2011. Impact of nutrient management based on soil test data on biomass production and partitioning and growth indices of

short-duration cassava (*Manihot esculenta* Crantz). *Indian Journal of Agricultural Sciences*, **81**(3):247-251

30. Susan John, K**.**, **Suja, G.,** Sheela, M. N. and Ravindran, C.S. 2010. Potassium: The key nutrient for cassava production, tuber quality and soil productivity- An overview. *Journal of Root Crops*, **36**(2): 132-144

31. Ravi, V., **Suja, G**. and Ravindran, C. S. 2011. Method for leaf area determination in Chinese potato (*Plectranthus rotundifolius*). *Journal of Root Crops*, **37**(1): 37-40

32. Ravi, V., Hridya, A.C., Suchitra, C. S., Byju, G., **Suja, G.** and Nair, M. M. 2011. Comparison of nitrate reductase activity in the leaves of tropical root and tuber crops. *Journal of Root Crops*, **37**(2): 192-196

33. Ravi,V. and **Suja, G**. 2012. Leaf area estimation in arrowroot (*Maranta arundinacea* L.). *Journal of Root Crops*, **38**(1): 60-63

34. Susan John, K., Bharathan, R., Manikantan Nair, M. and **Suja, G**. 2012. Soil based nutrient management plan for tuber crops in Pathanamthitta district of Kerala. *Journal of Root Crops*, 38(1): 51-59

35. **Suja, G**., Sreekumar, J., Susan John, K. and Sundaresan, S. 2012. Organic production of tuberous vegetables: Agronomic, nutritional and economic benefits. *Journal of Root Crops,* **38**(2): 135-141

National News Letter

36**. Suja, G.,** Nayar, T. V. R, Potty, V.P. and Sundaresan, S. 2006. Organic farming: An alternative option for tuber crop production. *CTCRI News*, **23**(1): 4-5

37. Susan John, K., **Suja, G**., Ravindran, C.S. and Ramesh,V. 2006. Nutritional Disorder: A major limiting factor to tannia (*Xanthosoma sagittifolium*) production under laterite soils of Kerala. *CTCRI News*, **23**(4): 1-2

Research papers in Symposia/ Workshop Proceedings (25)

International Symposium (9)

1. **Suja,** G., Sundaresan, S., Susan John, K. and Sreekumar, J. 2010. Organic yam production: Agronomic and nutritional implications under changing global environment. In: *Proceedings of Agro 2010 the XI ESA Congress.* J. Wery, I. Shili-Touzi and A. Perrin (Eds.). European Society of Agronomy, Montpellier, France, 29 August-3 September 2010, pp. 297-298

2. **Suja, G**., Sreekumar, J., Susan John, K. and Sundaresan, S. 2011. Organic production of tropical tuberous vegetables: an eco-friendly approach for sustainable production, tuber quality, soil quality and economic returns. In: *Proceedings of the 17 th IFOAM Organic*

World Congress, Organic is Life-Knowledge for Tomorrow, Republic of Korea, 28 September-1 October 2011. pp.293-296

3. **Suja, G**., Susan John, K. and Sreekumar, J. 2012. Crop diversification with short-duration cassava-cowpea system. In: *Extended Summaries Vol. 2: 3rd International Agronomy Congress*, New Delhi, India, 26-30 November 2012. pp. 410-411

4. **Suja, G**., Sreekumar, J. and Susan John, K. 2012. Higher soil quality index under organic farming in elephant foot yam. In: Proceedings, Global Conference on Aroids: Opportunities and Challenges. Misra, R.S. and Nedunchezhiyan, M. (Eds.), 23-25 January, 2012, Regional Centre, Central Tuber Crops Research Institute, Bhubanesawar, Orissa, India. pp.159-169 (In Press)

5. Nayar, T.V.R., **Suja, G**., Susan John, K. and Ravi, V. 2007. Cassava Agronomy in India – Low input management. In: *Proceedings of the VII Asian Cassava Research Workshop*, 28 October-1 November 2002, Bangkok, Thailand. pp.183-203

6. Susan John, K., **Suja, G.,** Sheela M.N. and Ravindran, C.S.2009. Potassium: The key nutrient in cassava production, tuber quality and soil productivit**y**. In: *Proceedings IPI-OUAT-IPNI International Symposium*, Bhubaneswar, 5-7 November 2009, pp. 297-300

7. Susan John, K., Ravindran, C.S., **Suja, G**., Prathapan, K., Naskar, S.K. and James George 2011. Response of cassava (*Manihot esculenta* Crantz) to zinc: Two decades experience in an Ultisol of Kerala, India. In: *Extended Abstracts of the 3rd International Zinc Symposium,* Hyderabad, India, 10-14 October 2011. pp. 27-28

8. Susan John, K. **Suja, G**. and Sheela, M. N. 2012. Potassium efficient cassava genotypes for consumption and industrial uses. In: *Extended Summaries Vol. 2: 3rd International Agronomy Congress*, New Delhi, India, 26-30 November 2012. pp. 1024-1025

9. Susan John, K., Remya R.T. and **Suja, G**. 2012. Integrated nutrient management strategy for tannia (Xanthosoma sagittifolium L. Schott) in an ultisol of Kerala, India. In: Proceedings, Global Conference on Aroids: Opportunities and Challenges. Misra, R.S. and Nedunchezhiyan, M. (Eds.). 23-25 January 2012, Regional Centre, Central Tuber Crops Research Institute, Bhubanesawar, Orissa, India. pp.170-183 (In Press)

National Symposium (16)

10. Nayar, T.V.R and **Suja, G**. 1999. Plant density for intercropping *Dioscorea* in coconut gardens. In: *Tropical Tuber Crops in Food Security and Nutrition*. Balagopalan, C., Nayar, T.V.R., Sundaresan, S., Premkumar, T. and Lakshmi, K.R. (Eds.). Oxford and IBH Publishing Co., Pvt. Ltd. New Delhi. pp.351-356

11. Nayar, T.V.R. and **Suja, G**. 2002. Potassium requirement and response of potassium application in tuber crops. In: *Proceedings of the Workshop on Use of Potassium in Kerala Agriculture,* Kerala Agricultural University and Potash and Phosphate Institute of Canada-India Programme, pp. 81-95

12. **Suja, G**., Nayar, T.V.R. and Ravindran, C.S. 2003. Production potential of arrowroot (*Maranta arundinacea* L.) as influenced by agronomic practices. In: *Food Security through Sustainable Technologies*. Potty, V. P. Edison, S. Jayaprakas C. A. and Sajeev, M. S. (Eds.). Swadeshi Science Movement and Central Tuber Crops Research Institute, Thiruvananthapuram. pp.9-11

13. **Suja, G**. and Nayar, T.V.R. 2004. Influence of coir pith compost on growth and yield of cassava and white yam. In: *Seminar/ Workshop Papers, Coir Board Golden Jubilee Celebration*, 11-13 August 2004, Central Coir Research Institute, Kalavoor, Alleppey, Kerala

14. Susan John K., **Suja, G**. and Ravindran, C.S. 2005. Soil resource management for tropical tuber crops. In: *Proceedings of the National Workshop on Soil Resource Management*, Soil Survey (SC unit), Department of Kerala, Thiruvananthapuram, 22-24 December, 2005 pp.284-309

15. Edison, S., Anantharaman, M. and **Suja, G**. 2005. Prospects of tuber crops in Rajasthan. In: *Souvenir released during Western Region Krishi Vigyan Mela-2005 & Flower, Fruit and Vegetable Show*, 24-27 February 2005, MPUAT, Udaipur

16. **Suja, G**. and Nair, V.M. 2006. Resource management for white yam (*Dioscorea rotundat*a Poir.) intercropped in coconut gardens. In: *Root and Tuber Crops in Nutrition, Food Security and Sustainable Environment*. Naskar, S.K., Nedunchezhiyan, M., Rao, K.R., Shivkumar, P.S., Ray, R.C., Misra R.S. and Mukherjee, A. (Eds.). National Symposium on Root and Tuber Crops (NSRTC–I), 29-31 October 2006, Bhubaneswar, Orissa. pp.153-161

17. Susan John, K. and **Suja, G**. 2007. Nutritional factors limiting the growth and yield of tannia in an acid ultisol. In: *Proceedings National Symposium on Soil Science Research: Retrospect and Prospect in the context of Environmental Quality and Food Security*, Kolkata, 7-9 December 2007, pp.102-103

18. **Suja, G**., Potty, V. P. and Sundaresan, S. 2008. Organic farming of aroids and yams: A feasible alternative farming strategy. In: *Proceedings of the 20 th Kerala Science Congress 2008*. 28-31 January 2008, Thiruvananthapuram, pp. 87-89

19. **Suja, G.,** Sundaresan, S. and Susan John, K. 2010. Eco-friendly management of elephant foot yam for sustainable production and protection of soil health. In: *Extended Summaries of the XIX National Symposium on Resource Management Approaches towards Livelihood Security, University of Agricultural Sciences, Bengaluru,* 2-4 December 2010*,* pp. 43-44

20. **Suja,** G., Sundaresan, S., Susan John, K. and Sreekumar, J. 2011. Organic farming for food and nutritional security in the context of climate change: Lessons learnt from tuberous vegetables. In: *Proceedings, National Seminar on Climate change and Food*

Security: Challenges and Opportunities for Tuber Crops (NSCFT 2011), Sajeev, M. S. Anantharaman, M., Padmaja, G. Unnikrishnan, M., Ravi, V. Suja, G. and Vinayaka Hegde (Eds.). Central Tuber Crops Research Institute, Thiruvananthapuram, 20-22 January 2011, pp.84-89

21. Susan John, K., **Suja, G.** and Sheela. M. N. 2011. Potassium efficient cassava (*Manihot esculenta* Crantz) genotypes for domestic and industrial uses. In: *Extended Summaries of the National Symposium on Potassium Nutrition in Enhancing Yield and Quality of Crops*, University of Agricultural Sciences, Dharwad, Karnataka, 17-18 January 2011, 177-179.

22. Ravindran, C. S., **Suja, G.** and Nedunchezhiyan, M. 2011. Tuber crops as component crops in cropping systems. In: (M. S. Sajeev, M. Anantharaman, G. Padmaja, M. Unnikrishnan, V. Ravi, G. Suja and Vinayaka Hegde (Eds.)), *Proceedings, National Seminar on Climate change and Food Security: Challenges and Opportunities for Tuber Crops (NSCFT 2011),* Central Tuber Crops Research Institute, Thiruvananthapuram, January 20-22, 2011. pp.235-239

23. Ravi, V., Hridya, A. C., Suchitra, C. S. Byju, G. **Suja, G. a**nd Manikantan Nair, M. 2011. Nitrate reductase activity in leaves of tropical root and tuber crops. In: (M. S. Sajeev, M. Anantharaman, G. Padmaja, M. Unnikrishnan, V. Ravi, G. Suja and Vinayaka Hegde (Eds.)), *Proceedings, National Seminar on Climate change and Food Security: Challenges and Opportunities for Tuber Crops (NSCFT 2011),* Central Tuber Crops Research Institute, Thiruvananthapuram, January 20-22, 2011. pp.253-255

24. Ravi, V., **Suja, G.,** Ravindran, C. S. and Naskar, S. K. 2011. Method for leaf area determination in *Plectranthus rotundifolius*. In: (M. S. Sajeev, M. Anantharaman, G. Padmaja, M. Unnikrishnan, V. Ravi, G. Suja and Vinayaka Hegde (Eds.)), *Proceedings, National Seminar on Climate change and Food Security: Challenges and Opportunities for Tuber Crops (NSCFT 2011),* Central Tuber Crops Research Institute, Thiruvananthapuram, January 20-22, 2011. pp.334-338

25. Sajeev, M. S., Anantharaman, M., Padmaja, G., Unnikrishnan, M., Ravi, V., **Suja, G**. and Vinayaka Hegde. 2011. Climate Change and Food Security: Challenges and Opportunities for Tuber Crops. *Proceedings, National Seminar on Climate change and Food Security: Challenges and Opportunities for Tuber Crops (NSCFT 2011),* Central Tuber Crops Research Institute, Thiruvananthapuram, January 20-22, 2011. 624 pp.

(iii) Research papers presented/ accepted in Symposia/Conferences (26)

International Symposium (19)

1. Nayar, T.V.R**.** and **Suja, G**. 2003. Production potential of root and tubers in association with plantation crops. In: *Abstracts of the 13th Symposium of the International Society for Tropical Root Crops*, 9-15 November 2003, Arusha, Tanzania.p.159

2. **Suja, G.** and Nair, V.M. 2003. Management of white yam (*Dioscorea rotundata* Poir.) intercropped in coconut garden. In: *Abstracts of Papers of the 13th Symposium of the International Society for Tropical Root Crops*, 9-15 November 2003, Arusha, Tanzania.p.57

3. Nayar, T.V.R**.**, **Suja, G**. and Potty, V.P. 2004. Adaptation of cassava genotypes to low soil fertility. In: *Abstracts Sixth International Scientific Meeting of the Cassava Biotechnology Network (CBN VI)*, 8-14 March 2004, CIAT, Cali, Columbia.p.82

4. **Suja,G.,** Nayar, T.V.R., Potty,V.P. and Sundaresan,S. 2006. Organic elephant foot yam production: A viable alternative farming strategy. In: *Abstracts of Papers 14 th Triennial Symposium of the International Society for Tropical Root Crops*, 20-26 November 2006, Thiruvananthapuram, Kerala, India. pp.191-192

5. Susan John, K. and **Suja, G**. 2006. Determination of optimum nutrient rate and nutritional constraints in tuber crops growing acid ultisol. In: *Abstracts of Papers 14 th Triennial Symposium of the International Society for Tropical Root Crops,* 20-26 November 2006, Thiruvananthapuram, Kerala, India. pp.189-190

6. Ravindran, C.S. and **Suja, G**. 2006. Role of tropical tuber crops in cropping systems. In: *Abstracts of Papers 14 th Triennial Symposium of the International Society for Tropical Root Crops*, 20-26 November 2006, Thiruvananthapuram, Kerala, India. pp.181-182

7. **Suja, G**., Potty, V.P. and Sundaresan, S. 2007. Organic elephant foot yam production: Agronomic and nutritional implications. In: *Abstracts of the International Symposium on Organic Farming and Renewable Sources of Energy for Sustainable Agriculture,* 19-21 November 2007, Maharana Pratap University of Agriculture and Technology, Udaipur, Rajasthan, p.38

8. Edison, S. and **Suja, G**. 2007. Organic tuber production: Issues, prospects and future strategies In: *Abstracts of the International Symposium on Organic Farming and Renewable Sources of Energy for Sustainable Agriculture,* Maharana Pratap University of Agriculture and Technology, Udaipur, Rajasthan, p.1-7

9. **Suja, G**. and Susan John K. 2008. Promising short duration cassava varieties for crop diversification. In: *Abstracts of the First Scientific Meeting of the Global Cassava Patnership GCP-1*, Cassava: Meeting the challenges of the new millennium, July 21-25 2008, Ghent, Belgium. p.108.

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17. Susan John, K., Ravindran, C. S., Naskar, S. K. **Suja, G**., Prathapan, K. and James George. 2011. Sustainable cassava production and soil productivity through soil based nutrient management: Experience from a long term fertilizer experiment and field validation trial in an Ultisol, Kerala, India. In: *Program and Abstracts of the 9 th Triennial Regional Cassava Workshop*, held at Nanning, China, 28 November-2 December 2011. pp. 23-24

18. Ravindran, C.S., **Suja, G**., Nedunchezhiyan, M. and Ravi,V. 2012. In: *Abstract Book,. Global Conference on Aroids: Opportunities and Challenges*. Misra, R.S. and

Nedunchezhiyan, M. (Eds.), 23-25 January, 2012, Regional Centre, Central Tuber Crops Research Institute, Bhubanesawar, Orissa, India. pp. 37.

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National Symposium (7)

20. Ramanathan, S., Potty, V.P., Sheela, M. N., **Suja, G**. and Anantharaman, S. 1996.Technology assessment and refinement through institute-village linkage: a holistic participatory approach. In: *Abstracts of Papers, National Seminar on Participatory Technology Development*, 21 – 22 November, 1996, Thiruvananthapuram. p.41

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22. Nayar, T.V.R. and **Suja, G**. 2004. Organic production potential of tropical tuber crops. In: *Abstracts XIV Swadeshi Science Congress, 5-7 November 2004, Swadeshi Science Movement***,** Kerala. p.20-21

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26. Edison, S. and **Suja, G**. 2008. Strategies for organic tuber production. In: *Programme and Abstracts of the National Conference on Organic Farming in Horticultural Crops with special reference to Plantation Crops*, 15-18 October 2008, Central Plantation Crops Research Institute, Kasaragod. p. 26-27

Popular articles (27)

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1. Nayar, T.V.R and **Suja, G**. 1998. Intercropping tubers with banana is remunerative. *Indian Horticulture,* **43** (2) : 15-17
2. Sunitha, S., **Suja, G**., Varghese, P.T. and Nampoothiri, K.U.K. 1995. Weed menace in oil palm plantations of Kerala.. *Indian Oil Palm. Journal*., **V**(28) : 169 – 171
3. **Suja,G.,** Nayar, T.V.R., Potty,V.P. and Sundaresan,S. 2006. Organic farming: a viable strategy for high yield and quality tuber crop production. *Indian Horticulture,* **51**(6): 4-5.
4. **Suja G**.,Nayar,T.V.R. and Ravindran,C.S. 2006. Arrowroot a promising lesser known tuber crop. *Indian Horticulture,* **51**(5):31-32
5. **Suja, G**. and Nayar,T.V.R. 2006. Organic tuber production: Issues, prospects and future strategies. *Kisan World,* **33**(11)***:*** 58-59
6. **Suja,G.,** Nayar, T.V.R., Potty,V.P. and Sundaresan,S. 2006. Organic farming in tropical tubers (in Hindi). *Phal Phool*, **28**(6): 26-28

Malayalam Popular Articles (21)

1. Nayar, T.V.R and **Suja, G**. 1995. Make cassava cultivation profitable (in Malayalam). *Kerala Karshakan,* **40** (14) : 4

2. Kabeerathumma, S., **Suja, G**. and Nair, G.M. 1995. Cassava cultivation and soil erosion (in Malayalam). *Kerala Karshakan,* **40** (16) : 8

3. Nayar, T.V.R and **Suja, G**. 1995. Management of Tulakappa (in Malayalam)***.*** *Karshaka Sree,* **1** (2) : 6-7

4. Nayar, T.V.R and **Suja,G**. 1996. Tuber Crops as intercrops (in Malayalam***).*** *Karshaka Sree,* **1** (7) : 25

5. Nayar, T.V.R and **Suja, G**. 1997. For better yield – grow tuberous vegetables (in Malayalam). *Kerala Kaumudi*, May 8, 1997

6. Nayar, T.V.R and **Suja, G**. 1997. Tuberous vegetables (in Malayalam). *Kerala Karshakan,* **42**(14) : 30

7. Nayar, T.V.R and **Suja, G**. 1997. Yams as intercrops in banana and coconut (in Malayalam). *Karshaka Sree,* **3**(2) : 26-27

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12. **Suja, G.** 2006. For good yields from elephant foot yam and taro in Malayalam). *Karshaka Sree,***11**(8):12-13
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14. **Suja, G**. 2007. Tuber crops as intercrops in banana (in Malayalam). *Krishi Anganam,* **12**(2): 17-18
15. **Suja, G**. and Ravindran, C. S. 2008. Income generating arrowroot cultivation (in Malayalam). *Karshakan*, **18**(4): 21-22
16. Susan John, K. and **Suja, G**. 2008. Tannia in laterite soils (in Malayalam). *Kerala Karshakan,* **54** (11) : 52-54
17. **Suja, G**. and Sundaresan, S. 2009. Organic farming for high yield in elephant foot yam (in Malayalam). *Kerala Karshakan,* **55** (3) : 38-40
18. **Suja, G.** and Ravindran, C. S. 2010. Arrowroot, Chinese potato and lesser yam: For high yield and income (in Malayalam). *Kerala Karshakan,* **55** (9) : 18-21
19. Suja, G. 2010. Organic production of tuberous vegetables: For high yield and quality. (in Malayalam). *Krishi Anganam*. 15(3,4): 74-75
20. Ravindran, C.S. and **Suja, G.** 2011. Scientific management practices of tuber crops (in Malayalam). *Panchayat Raj,* **51**(7):12-17
21. Ravindran, C.S. and **Suja, G.** 2013. Nadam Naduthalakal (in Malayalam). Kerala Karshakan, **58**(8):34-35.

11. Number of Books/Book chapters (Add list): 6

1. **Suja, G.** 2008. Strategies for organic production of tropical tuber crops. In: *Organic Farming in Rainfed Agriculture: Opportunities and Constraints* (Eds. Venkateswarlu, B., Balloli, S. S. and Ramakrishna, Y. S.) Central Research Institute for Dryland Agriculture, Hyderabad, pp.185
2. Nayar, T.V.R. and **Suja,G**. Tapioca (Cassava) Agronomy in India. In: *Green Book on Tapioca*, Volume III, Sago Serve, Salem, Tamil Nadu
3. Ravindran, C. S., **Suja, G**. and Susan John K. 2008. Agro-techniques and quality planting material production in minor tuber crops. In: *Advance Techniques in Quality Planting Material Production and Commercial Cultivation of Tropical Tuber Crops* (Ed. Nedunchezhiyan, M.), Regional Centre, Central Tuber Crops Research Institute, Bhubaneswar, Orissa, India, pp.53-59

4. Edison, S., Hegde, V., Makeshkumar, T., Srinivas, T., **Suja, G**. and Padmaja, G. 2009. Sweetpotato in the Indian Sub-continent. In: *The Sweetpotato* **(**Eds**.** Loebenstein, G. and Thottapilly, G.). Springer Science and Business Media, B.V. pp.522

5. **Suja, G.** and Sundaresan, S. 2010. Agronomic, nutritional and economic implications of organic elephant foot yam production. In: (eds. H. P. Singh and George V. Thomas) *Organic Horticulture- Principles, Practices and Technologies*, Westville Publishing House, New Delhi. pp. 177-183

6. Nedunchezhiyan, M. and **Suja, G**. 2011. Organic farming of tropical tuber crops. In: *Recent Developments in Organic Farming* (eds. J. M. L. Gulati and T. Barik), Orissa University of Agriculture and Technology, Bhubaneswar, pp. 499-510

12. Number of Technical Bulletins (Add list): 4

1. Varma, S.P., Ravi, V. and **Suja, G**. 1996. *Technologies for better production – Yambean, Coleus, Arrowroot, Colocasia (Dasheen) and Xanthosoma.* Central Tuber Crops Research Institute, Sreekariyam. Trivandrum. 26 p.

2. Varma, S.P., **Suja, G**., and Rajendran, P.G. 1997**.** *Production technology for cassava and sweet potato*. Central Tuber Crops Research Institute, Sreekariyam. Trivandrum. 24p.

3. Anantharaman, M., Ramanathan, S., Potty, V. P., Sheela, M. N. and **Suja, G**. 2001.*Institution Village Linkage Programme – Agro Ecosystem Analysis.Tech. Bull Series* 34, CTCRI, Sreekariyam, Trivandrum, June, 2001. 68p.

4. Susan John K., **Suja, G**., Edison,S. and Ravindran, C.S. 2006. *Nutritional Disorders of Tropical Tuber Crops*. *Technical Bulletin Series 48*, Central Tuber Crops Research Institute, Sreekariyam, Thiruvananthapuram, Kerala, India.74p

Others (36)

Course manuals (19)

1. **Suja, G.** 1997**.** Improved cultivation techniques- Yams and aroids. In: *Course Manual on National Training Course on Management of Cropping Systems involving Tuber Crops,* October 15-22,1997. pp.41-47

2. **Suja, G**. 2000. Nutrient management of yams, aroids and coleus. In: *Course Manual on National Training Course on Production Technology of Tuber Crops,* December 6-13**,** 2000**.** pp.53-55

3. Nayar, T.V.R and **Suja, G**. 2000. Cultural aspects of arrowroot. In: *Course Manual on Advances in Crop Production and Crop Protection Technology of Tuber Crops.* Training unit, KHDP, Trivandrum. pp. 24-25

4. Nayar, T.V.R and **Suja, G**. 2000. Intercropping tropical tubers with banana. In: *Course Manual on Advances in Crop Production and Crop Protection Technology of Tuber Crops*. Training unit, KHDP, Trivandrum. pp. 26-27

5. **Suja, G**. 2001. Nutrient management of yams, aroids and minor tubers. In : *Course Manual on National Training Course on Production Technology of Tuber Crops,* September 12-19, 2001. pp.66-68

6. Abraham, K. and **Suja, G**. 2005. *Course Manual Refresher Training Course for Technical Staff of CTCRI,* 7-11 November 2005, Central Tuber Crops Research Institute, Sreekariyam, Thiruvananthapuram. 85 pp.

7. James George and **Suja, G**. 2005. Agrotechniques for tropical tuber crops. In: *Course Manual, Refresher Training Course for Technical Staff of CTCRI*., 7-11 November 2005, Central Tuber Crops Research Institute, Sreekariyam, Thiruvananthapuram, pp.34-46.

8. **Suja, G.** 2006. Organic farming an alternative option for tuber crop production. In*: Quality Planting Material Production in Tropical Tuber Crops.* (Ed.) G. Byju. Central Tuber Crops Research Institute, Sreekariyam, Thiruvananthapuram. pp.165-170

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11. **Suja, G.** 2007. Organic farming in tropical tubers: Prospects, problems and future strategies. In: *Course Document of Model Training Course on Cropping Systems Approach in Tropical Tuber Crops Production and Processing*, February 20-27 2007, Central Tuber Crops Research Institute, Thiruvananthapuram, pp. 71-76

12. **Suja, G.** 2008. Organic farming in tuber crops. In: *Course Document of the Model Training Course on Integrated Production and Processing Management for Tropical Tuber Crops,* 15-22 October 2008, Central Tuber Crops Research Institute, Thiruvananthapuram, pp. 57-68

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15. Nedunchezhiyan, M., **Suja, G**. and Ravindran, C. S. 2010. Agro-techniques in cassava, sweet potato and minor tuber crops. In: *Course Document on Training Course on Agro-techniques of Tropical Tuber Crops*, 11-13 May 2010, Central Tuber Crops Research Institute, Regional Centre, Bhubaneswar, pp.36-49.

16. Nedunchezhiyan, M., **Suja, G**. and Ravindran, C. S. 2010. Agro-techniques in cassava, sweet potato and minor tuber crops. In: *Training Manual on Agro-techniques and Value Addition in Tropical Tuber Crops*, 24-26 June 2010, Central Tuber Crops Research Institute, Regional Centre, Bhubaneswar, pp.36-49.

17. **Suja, G.** 2011. Organic production techniques of tuber crops. In: *Course Document of the Model Training Course on Eco-friendly Management of Tuber Crops Based Cropping System,* 11-18 October 2011, Central Tuber Crops Research Institute, Thiruvananthapuram, pp. 126-138.

18. **Suja, G**. 2011. Organic farming in tuber crops. In: *Course Document on Training Course on Advanced Production Technologies of Tropical Tuber Crops and their Value Addition*, 13-17 December 2011, Central Tuber Crops Research Institute, Thiruvananthapuram,, pp.56-68

19. **Suja, G**. 2012. Sustainable management of tuber crops in cropping systems: Organic production techniques. In: Course Document of the Model Training Course on Sustainable Management Strategies of Tuber Crops Based Cropping Systems, 5-12 October 2012, Central Tuber Crops Research Institute, Thiruvananthapuram, pp.133-146

(viii) Contributions in compilations (11)

1. Research Highlights of CTCRI for 2002-2003, 2009-10, 2010-11
2. Annual report of CTCRI for 2004-05, 2009-10, 2010-11, 2011-12
3. Final Report of Quinquennial Review Team for CTCRI and AICRP on Tuber Crops
4. Vision 2020 Document of CTCRI
5. Annual reports of AICRP on Tuber Crops for 1994-95, 1995-96, 1996-97, 2001- 02, 2004-05
6. Research highlights of AICRP on Tuber Crops for 1995-96 and 1996-97
7. Biennial reports of AICRP on Tuber Crops for 1993-95 and 1995-97 for the third and fourth group meetings respectively
8. Proceedings of the third group meeting of the AICRP on Tuber Crops
9. Abstract of Papers of NSCFT 2011
10. Organic farming technology for elephant foot yam. In: Crop management section of *DARE/ICAR Annual Report 2010-11*, Directorate of Information and Publications of Agriculture, ICAR, New Delhi. pp.40

11. Organic farming technology for elephant foot yam In: Crop management section of *DARE/ICAR Annual Report 2009-10*, Directorate of Information and Publications of Agriculture, ICAR, New Delhi. pp.53

Telecast from Doordarshan Kendra, Thiruvananthapuram (2)

1. Expert of Live Phone-in Programme on Cultivation of Tuber Crops of Kisan Krishi Darshan, Doordarshan, telecast on 15 May 2009

2. Involved in the "Noorumeni programme on CTCRI" telecast on 6 November 2009 from Doordarshan Kendra, Thiruvananthapuram

Chief Editor, Journal of Root Crops (4)

1. **Journal of Root Crops 37(1) 2011**
2. **Journal of Root Crops 37(2) 2011**
3. **Journal of Root Crops 38 (1) 2012**
4. **Journal of Root Crops 38 (2)2012**

13. Consultancies offered (Add list and give a brief description):

Soil and Plant Test Based Fertilizer Recommendations were given to 74 tuber crop farmers of 9 districts of Kerala (48 cassava, 16 elephant foot yam, 7 taro and 3 yam growers) on payment basis, in collaboration with Kerala State Land Use Board and generated a revenue of Rs. 2.553 lakhs

14. Technologies developed (Add list and give a brief description):

1. Resource management for tuber crops in cropping systems

Development of agronomic package and integrated nutrient management practices, for the first time, for white yam intercropping in coconut garden

- African white yam found suitable as a profitable intercrop in coconut gardens
- Treatment of white yam setts of 100g with thiourea 2% for early, synchronized and higher sprouting
- Planting white yam setts of 200g at a spacing of 90x90 cm (9000 plants ha^{-1} of coconut garden) for optimum yield, quality tubers and higher profit
- Feasibility of alternative manuring practices using coir pith compost or green manure in the place of traditional manuring using farmyard manure for white yam production under intercropping
- Conjoint use of coir pith compost @ 5 t ha^{-1} and N, P_2O_5, K_2O @ 80:60:80 kg ha^{-1} ensures higher yield (24.61 t ha^{-1}) and returns (Rs. 36,187 ha^{-1}) from white yam production in coconut gardens
- The above technology would promote the safe disposal of coconut coir pith, an organic waste posing environmental problems, to provide good quality manure for profitable white yam production in the southern coconut growing tracts

- Coconut–white yam system was profitable (Rs. 31,525 ha^{-1}) generated additional employment (318 man days per ha) and provided high energy secondary staple

Production techniques for banana+Dioscorea system was developed

- In Banana-*Dioscorea* system banana var. Robusta requires manuring at the full recommended dosage, while 2/3 recommended level is sufficient for *Dioscorea*. About 6000 *Dioscorea* plants can be accommodated in such an association
- Intercropping *Dioscorea* in immature rubber plantation is feasible only during the initial 2-3 years

Resource management for short-duration cassava

- Short duration cassava varieties, Sree Jaya, Sree Vijaya, Kalpaka and Vellayani Hraswa appeared promising for cultivation in rice fallows
- Nutrient management based on soil test data, which resulted in a saving of full P, 10% N and 15 % K by the third year, proved sufficient for short-duration cassava
- Sequential cropping of vegetable cowpea (var. Pusa Komal) and grain cowpea (var.C-152) with short-duration cassava is an ideal practice
- Saving of full P and half N is possible for short-duration cassava in both sequential and intercropping systems with cowpea

2. Low input technology for cassava/Integrated Nutrient Management for cassava

- Integrated use of biofertilizers (*Azospirillum and Phosphobacterium*) with the full dose of organic manure and K and 50% of N and P produced tuber yields on par with the present nutrient recommendation for cassava implying the possibility to reduce N and P fertilizer input to 50%

3. Production technology for minor tuber crops

- Plant spacing of 30x15 cm, mulching using locally available plant materials and application of 50 kg N, 25 kg P_2O_5 and 75 kg K_2O ha^{-1} proved to be ideal for higher rhizome yield and starch yield from arrowroot raised as an inter crop in coconut garden
- Application of FYM @10 t ha^{-1} along with wood ash @ 3 t ha^{-1} for higher cormel yield in tannia
- Planting during May-June, mulching using green leaves and a spacing of 90x90 cm proved beneficial for higher productivity in tannia

4. Organic farming of yams and aroids

- Developed package of practices for the organic production of elephant foot yam (EFY), tannia, taro, yams (white yam, greater yam, lesser yam and dwarf white yam) and cassava involving seed treatment in cow-dung, neem cake and *Trichoderma* slurry, farmyard manure incubated with *Trichoderma*, practice of green manuring, use of crop residues, neem cake, biofertilizers and ash
- Validated and popularized organic farming technology for elephant foot yam in 10 on farm sites in 5.2 ha in Kollam and Pathanamthitta districts of Kerala. This is included in POP Crops 2011 of Kerala Agricultural University.
- Evolved a sustainable alternative production system for these crops for higher yield (by 10-20%), profit (by 28% in EFY) and maintenance of soil health
- Evolved soil quality index for organic farming in elephant foot yam
- Developed a strategy for the production of safe and better quality food: Organic farming produced quality tubers with higher dry matter, starch, crude protein, K, Ca

and Mg and lower oxalate contents over conventional practice in elephant foot yam and yams

Technologies included in POP Crops of Kerala Agricultural University

- POP CROPS-2011: Organic farming technology for elephant foot yam
- POP (Adhoc) for Organic farming: CROPS-2009: Organic farming technology for tuber crops
- POP CROPS-2007: Production technology for arrowroot

15. Patents/Copyrights obtained (Add list and give a brief description): Nil

16. Any other information:

Awards, Fellowships and Honours: 14

1. **JAWAHARLAL NEHRU AWARD OF ICAR** for outstanding Post Graduate Agricultural Research 2003, in recognition of Ph.D thesis titled "Resource management for intercropping white yam (*Dioscorea rotundata* Poir.) in coconut garden"
2. **CERTIFICATE OF APPRECIATION** from Kerala Agricultural University and Indian Agricultural Association in recognition of receipt of Jawaharlal Nehru Award 2003
3. **BEST ORAL PAPER AWARD** for the paper titled "Organic farming for food and nutritional security in the context of climate change: Lessons learnt from tuberous vegetables presented in the National Seminar on Climate Change and Food Security: Challenges and Opportunities for Tuber Crops (NSCFT) held at CTCRI, Thiruvananthapuram during 20-22 January 2011
4. **BEST RESEARCH PAPER AWARD** for the oral paper titled **"Agronomic, nutritional and economic implications of organic elephant foot yam production**" presented at the National Conference on Organic Farming (NCOH 2008) in Horticultural Crops with special reference to plantation crops held at CPCRI, Kasaragod during 15-18 October 2008
5. **FIRST PRIZE FOR THE POSTER PAPER** titled **"Impact of nutrient management practices on nutrient use efficiency and economics of white yam** (***Dioscorea rotundata*** **Poir.) intercropped in a coconut garden"** in the Theme area Land and Nutrient Use Efficiency at the National Symposium on Improving Input Use Efficiency in Horticulture held at Bangalore during 9-11 August 2006
6. **Research paper titled "Organic Elephant Foot Yam Production: A Viable Alternative Farming Strategy"** was recognised as one of the **best oral presentations** and received the **CERTIFICATE OF APPRECIATION AS HIGHLY COMMENDED ORAL PRESENTATION** in the 14 th Triennial Symposium of International Society for Tropical Tuber Crops held at Thiruvananthapuram during 20-26 November 2006
7. **KAU STUDENTS UNION GOLD MEDAL** for getting **First Rank** for B.Sc (Ag.)
8. Certificate of Merit of **Dr. N. Kunjan Pillai Memorial Endowment Prize** for getting **First Rank** for B.Sc (Ag.)
9. Certificate of Merit of **Sri. E. P. Madhavan Nair Memorial Gold Medal** for getting **First Rank** for B.Sc (Ag.)
10. **Dr. Abraham Thomas Memorial Endowment Prize** for getting **First Rank** for B.Sc (Ag)

11. **ICAR Junior Fellowship** in Agronomy for M.Sc. (Ag)
12. **KAU Merit Scholarship** for B.Sc. (Ag)
13. **Received the Netherlands Fellowship** under the Netherlands Fellowship Programme to attend an International Course "Agriculture in Transition: Innovative approaches for sustainable farming" during 13-24 May 2013 at Wageningen UR Centre for Development Innovation, The Netherlands
14. Nominated as **Councillor**, Kerala, of **The Indian Society of Agronomy** for the biennium 2013-2014