

**Biodata of the Scientist**

Division/Section: Crop Production

**A. Personal information**

1. Name(With Title): Nedunchezhiyan Maniyam

1. a. Qualification: Ph.D.

2. Designation: Principal Scientist

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4. Phone Numbers:

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5. Email: mnedun@gmail.com

6. Countries visited: China, Lao PDR, Thailand

**B. Professional information**

1. Area of specialization: Root and Tuber Crops Agronomy

2. Area of interest: Weed, water and nutrient management in tuber crops based cropping systems

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

4. Number of Institute projects being handled (Add list): One

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

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

7. Number of students guided for a) Ph.D: One b) M.Phil \_\_\_\_\_ c) M.Sc Two

8. Number of students being guided for a) Ph.D \_\_\_\_\_ 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

9. Information on guide ship

Guide ship for Ph.D/ M.Phil/ M.Sc	University	Subject
	Orissa University of Agriculture and Technology	Agronomy
	Calcutta University	Horticulture
	Vishva Bharathi	Agronomy

10. Number of Research papers (Add list): 110

11. Number of Books/Book chapters(Add list): 11/21
12. Number of Technical Bulletins(Add list): 4
13. Consultancies offered (Add list and give a brief description): 4
14. Technologies developed (Add list and give a brief description): 10
15. Patents/Copyrights obtained (Add list and give a brief description): -
16. Any other information:

### LIST OF PUBLICATIONS OF DR. M. NEDUNCHEZHIAN

#### Research papers

1. Nedunchezhiyan, M., Byju, G., Dash, S.N. and Ranasingh, N. 2013. Selected soil enzyme activities, soil microbial biomass carbon and root yield as influenced by organic production systems in sweet potato. *Communications in Soil Science and Plant Analysis* 44(8): 1322-1339.
2. Nedunchezhiyan, M. and Sankaran, M. 2013. Cormels and minicorm sett techniques for seed corm production in *Amorphophallus*. *Aroideana* 36: 136-145.
3. Lenka, A. and Nedunchezhiyan, M. 2013. Biochemical composition of two edible aroids. *E-planet* 10 (2): 39-42.
4. Nedunchezhiyan, M., Byju, G. and Ravi, V. 2012. Photosynthesis, dry matter production and partitioning in cassava (*Manihot esculenta* Crantz) under partial shade of a coconut plantation. *Journal of Root Crops* 38 (2): 2012.
5. Nedunchezhiyan, M., Jata, S.K., Mukherjee, A. and Misra, R.S. 2012. Sprout bud culture: A rapid multiplication technique for elephant foot yam (*Amorphophallus paeoniifolius* [Dennst.] Nicolson) propagation. *Aroideana* 35: 132-143.
6. Nedunchezhiyan, M., Byju, G. and Ray, R.C. 2012. Effect of tillage, irrigation and nutrient levels on growth and yield of sweet potato in rice fallow. *ISRN Agronomy* 2012: 1-13, Article ID 291285, doi: 10.5402/2012/291285.
7. Byju, G., Nedunchezhiyan, M., Ravindran, C.S., Santhosh Mithra, V.S., Ravi, V. and Naskar, S.K. 2012. Modeling the response of cassava to fertilizer: A site specific nutrient management approach for greater tuberous root yield. *Communications in Soil Science and Plant Analysis* 43(8): 1149-1162.
8. Nedunchezhiyan, M., Jata, S.K., Byju, G. and Veena, S.S. 2011. Effect of tuber crops waste/byproducts on nutritional and microbial composition of vermicomposts and duration of the vermicomposting process. *Journal of Botany* 2011: 1-6, Article ID 801703, doi: 10.1155/2011/801703.
9. Nedunchezhiyan, M., Jata, S.K., Mukherjee, A. and Misra, R.S. 2011. Impact of growth regulators on cormel production and dormancy breaking in elephant foot yam (*Amorphophallus paeoniifolius* (Dennst.) Nicolson). *Journal of Root Crops* 37 (1): 24-28.
10. Shankaran, M., Singh, N.P., Jai Prakash, Santhosh, B. and Nedunchezhiyan, M. 2011. Production of seed corms through cormels in elephant foot yam (*Amorphophallus paeoniifolius* (Dennst.) Nicolson). *Journal of Root Crops* 37 (1): 86-87.
11. Ravi, V., Ravindran, C.S., Suja, G., James George, Nedunchezhiyan, M., Buju, G. and Naskar, S.K. 2011. Crop physiology of elephant foot yam [*Amorphophallus paeoniifolius* (Dennst. Nicolson)]. *Advances in Horticultural Science*, 25 (1): 51-63.
12. Nedunchezhiyan, M., Jata, S.K., Ray, R.C. and Misra, R.S. 2011. Management of mealybug (*Rhizoecus Amorphophalli*) in elephant foot yam (*Amorphophallus paeoniifolius*). *Experimental Agriculture* 47 (4): 717-728.

13. Nedunchezhiyan, M. 2011. Evaluation of sweet potato (*Ipomoea batatas*) based strip intercropping systems for yield, competition indices and nutrient uptake. *Indian Journal of Agronomy* 56 (2): 98-103.
14. Nedunchezhiyan, M., Laxminarayana, K., Rajasekhara Rao, K. and Satapathy, B.S. 2011. Sweet potato (*Ipomoea batatas* L.)–based strip intercropping: I. Interspecific interactions and yield advantage. *Acta Agronomica Hungarica*, 59 (2): 137-147.
15. Nedunchezhiyan, M., Byju, G.. and Misra, R.S. 2010. Effect of drp fertigation on yield and economics of elephant foot yam. *Journal of Water Management* 18 (1&2): 60-64.
16. Nedunchezhiyan, M., Byju, G., Naskar, S.K. and Mukherjee, A. 2010. Effect of mulching and graded doses of fertilizer on yield and nutrient uptake of greater yam + maize intercropping system. *Indian Journal of Horticulture*, 67 (special issue):
17. Nedunchezhiyan, M., Byju, G. and Dash, S.N. 2010. Effects of organic production of orange fleshed sweet potato (*Ipomoea batatas* L.) on root yield, quality and soil biological health. *International Research Journal of Plant Science*, 1 (6): 136-143.
18. Nedunchezhiyan, M., Rajasekhara Rao, K., Laxminarayana, K. and Satapathy, B.S. 2010. Effect of strip cropping involving sweet potato (*Ipomoea batatas* L.) on soil moisture conservation, weevil infestation and crop productivity. *Journal of Root Crops*, 36 (1): 53-58.
19. Ravi, V., James George, Ravindran, C.S., Suja, G., Nedunchezhiyan, M., Byju, G. and Naskar, S.K. 2010. Method of leaf area determination in elephant foot yam (*Amorphophallus paeoniifolius* (Dennst.) Nicolson). *Journal of Root Crops*, 36 (1): 78-82.
20. Ravindran, C.S., Ravi, V., Nedunchezhiyan, M., James George and Naskar, S.K. 2010. Weed management in tropical tuber crops: an overview. *Journal of Root Crops*, 36 (2): 119-131.
21. Nedunchezhiyan, M., Anantharaman, M. and Sethuraman Sivakumar, P. 2010. Effectiveness of a winter school on quality planting material production of tropical tuber crops. *Journal of Root Crops*, 36 (1): 95-99.
22. Nedunchezhiyan, M., Rajasekhara Rao, K. and Satapathy, B.S. 2010. Productivity potential, biological efficiency and economics of sweet potato (*Ipomoea batatas*) – based strip intercropping systems in rainfed Alfisols. *Indian Journal of Agricultural Sciences*, 80 (4): 327-330.
23. Nedunchezhiyan, M. 2010. Performance of greater yam (*Dioscorea alata*) + maize (*Zea mays*) intercropping as influenced by mulching and levels of N-P-K fertilization. *Indian Journal of Agronomy*, 55 (1): 1-4.
24. Sethuraman Sivakumar, P., Nedunchezhiyan, M., Paramaguru, S. and Ray, R.C. 2009. Production system-specific differences in farmers demand for greater yam (*Dioscorea alata*) varietal attributes in Orissa state, India. *Experimental Agriculture*. 1-14.
25. Srinivas, T., Nedunchezhiyan, M. and Misra, R.S. 2009. Marketing of elephant foot yam – an upcoming commercial crop in India. *Indian Journal of Agricultural Marketing* (Conference special). 23 (3): 179-188.
26. Naskar, S.K. and Nedunchezhiyan, M. 2009. Evaluation of sweet potato genotypes for fodder yield and proximate composition. *Journal of Root Crops*, 35 (2): 229-231.
27. Archana Mukherjee, Naskar, S.K., Nedunchezhiyan, M. and Rao, K.R. 2009. In vitro propagation of elephant foot yam. *Indian J. Hort.* 66 (4): 530-533.
28. Nedunchezhiyan, M., Byju, G. and Naskar, S.K. 2008. Performance of sweet potato (*Ipomoea batatas*) varieties under shaded and open field conditions. *The Indian Journal of Agricultural Sciences*, 78 (11): 974-977.

29. Nedunchezhiyan, M. and Misra, R.S. 2008. *Amorphophallus* tubers invaded by *Cynodon dactylon*. *Aroideana*, 31: 129-133.
30. Sankaran, M., Singh, N.P., Nedunchezhiyan, M., Santhosh, B. and Chander Datt. 2008. *Amorphophallus muelleri* Blume (Araceae): An edible species of elephant foot yam in tribal areas of Tripura. *Aroideana*, 31: 125-128.
31. Nedunchezhiyan, M., Byju, G. and Dinesh Kumar. 2008. Effect of sett size and spacing on growth, yield and economics of greater yam intercropped in coconut garden. *Indian Journal of Horticulture*, 65 (2): 248-251.
32. Nedunchezhiyan, M., Byju, G. and A. Mukherjee. 2008. Performance of cassava varieties intercropped in coconut plantation. *Indian Journal of Horticulture*, 65 (1): 122-125.
33. Nedunchezhiyan, M., Byju, G. and Naskar, S.K. 2008. Yield potential and economics of elephant foot yam (*Amorphophallus paeoniifolius*) + greengram (*Vigna radiata*) intercropping system as influenced by mulching and fertilizer levels. *The Indian Journal of Agricultural Sciences*, 78 (1): 17-20.
34. Naskar, S.K., Gupta, J.J., Nedunchezhiyan, M. and Bardoli, R.K. 2008. Evaluation of sweet potato tubers in pig ration. *Journal of Root Crops* 34(1): 50-53.
35. Sankaran, M., Singh, N.P., Chander Datt, Santhosh, B., Nedunchezhiyan, M., Naskar, S.K. and Ngachan, S.V. 2008. Evaluation of high yielding cassava varieties under upland conditions of Tripura. *Journal of Root Crops* 34(1): 73-76.
36. Sankaran, M., Singh, N.P., Chander Datt, Nedunchezhiyan, M., Santhosh, B., and Ngachan, S.V. 2008. Morphological and proximate composition of *Amorphophallus muelleri* Blume. *Journal of Root Crops* 34(1): 79-81.
37. Nedunchezhiyan, M. 2007. Production and energy use efficiency of greater yam (*Dioscorea alata*) based intercropping system as influenced by intercrops and planting patterns. *Indian Journal of Agronomy*, 52 (3): 216-219.
38. Nedunchezhiyan, M., Byju, G. and Naskar, S.K. 2007. Sweet potato (*Ipomoea batatas* L.) as an intercrop in a coconut plantation: growth, yield and quality. *Journal of Root Crops*, 33 (1): 26-29.
39. Byju, G., Nedunchezhiyan, M. and Naskar, S.K. 2007. Sweet potato response to boron application on an alfisols in the subhumid tropical climate of India. *Communications in Soil Science and Plant Analysis*, 38: 2347-2356.
40. Nirakar Ranasingh, Nedunchezhiyan, M. and Jena, B.C. 2007. Black fungus beetle (*Alphitobius leevigatus* F.) a storage pest in elephant foot yam. *Journal of Plant Protection and Environment*, 4 (1): 140-141.
41. Nedunchezhiyan, M. and Byju, G. 2006. Influence of intercrops on growth and yield of greater yam in different planting systems. *Journal of Root Crops*, 32 (1): 41-46.
42. Sahoo, T.R., Dora, D.K., Rout, K.K. and Nedunchezhiyan, M. 2006. Productivity and economic return of a yam (*Dioscorea alata*)-Maize intercropping system in an acid soil as influenced by fertilizer level and mulching. *Current Agriculture Research*, 19 (1-4): 20-25.
43. Nedunchezhiyan, M., Byju, G. and Naskar, S.K. 2006. Effect of intercrops and planting pattern on incidence of anthracnose, productivity potential and economics of greater yam (*Dioscorea alata*). *The Indian Journal of Agricultural Sciences*, 76 (2): 132-134.
44. Nedunchezhiyan, M. and Ray, R.C. 2005. Effects of dates of sowing on dry matter production and partitioning in yam bean (*Pachyrrhizus erosus* (L) Urban). *Annals of Tropical Research* 27 (2): 31-42.

45. Nedunchezhiyan, M. and Byju, G. 2005. Effect of planting season on growth and yield of sweet potato (*Ipomoea batatas* L.) varieties. *Journal of Root Crops*, 31 (2): 111-114.
46. Sethuraman Sivakumar, P. Nedunchezhiyan, M. and Naskar, S.K. 2005. Swamp taro production system in the North Bengal region of India. *Journal of Root Crops*, 31 (2): 149-152.
47. Nedunchezhiyan, M. and Byju, G. 2005. Productivity potential and economics of elephant foot yam based cropping system. *Journal of Root Crops*, 31 (1): 34-39.
48. Nedunchezhiyan, M. and Mohanty, A.K. 2005. Economic evaluation of cassava (*Manihot esculenta*) varieties under rainfed conditions in Orissa. *The Orissa Journal of Horticulture*, 33 (1): 108-110.
49. Bharathi, L.K., Medhi, R.P., Venkatesh, A. Damodaran, V. and Nedunchezhiyan, M. 2005. Performance of yams in Bay Island. *The Orissa Journal of Horticulture*, 33 (2) : 7-10.
50. Mohanty, A.K., Sethi, K., Samal, S., Naskar, S.K. and Nedunchezhiyan, M. 2005. Relationship of optimum stage of harvest with weevil incidence in sweet potato under different agroclimatic conditions of Orissa. *The Orissa Journal of Horticulture*, 33 (1): 43-45.
51. Misra, R.S., Nedunchezhiyan, M. and Suja, G. 2005. Commercially cultivated edible aroids in India. *Aroideana*, 28: 174-190.
52. Nedunchezhiyan, M. and Naskar, S.K. 2004. Production potential of cassava (*Manihot esculenta*) varieties under rainfed conditions in Ultisols of Orissa. *The Indian Journal of Agricultural Sciences*, 74 (8): 482-484.
53. Byju, G. and Nedunchezhiyan, M. 2004. Potassium: A key nutrient for higher tropical tuber crops production. *Fertilizer News*, 49 (3): 39-44.
54. Nedunchezhiyan, M. and Srinivasulu Reddy, D. 2004. Growth, yield and soil productivity as influenced by integrated nutrient management in rainfed sweet potato. *Journal of Root Crops*, 30 (1): 41-45.
55. Nedunchezhiyan, M., Srinivasulu Reddy, D. and Haribabu, K. 2003. Nitrogen management practices on quality characters of sweet potato (*Ipomoea batatas* L. Lam). *Journal of Root Crops*, 29 (2): 69-72.
56. Nedunchezhiyan, M. and Satapathy, B.S. 2003. Effect of weed management practices on root development in taro (*Colocasia esculenta* (L.) Schott). *Journal of Root Crops*, 29 (1): 60-64.
57. Nedunchezhiyan, M., Ravi Prakash, Shyamalal, and Nandi, A.K. 2003. Cassava as an intercrop in newly established coconut garden. *Indian Coconut Journal*, 34 (5): 14-16.
58. Misra, R.S., Sriram, S., Nedunchezhiyan, M. and Mohandas, C. 2003. Field and storage diseases of *Amorphophallus* and their management *Aroideana*, 26: 101-112.
59. Sethi, K., Mohanty, A.K., Naskar, S.K. and Nedunchezhiyan, M. 2003. Efficacy of IPM technology over farmers/traditional practices in management of sweet potato weevil (SPW) in tribal areas of Orissa. *The Orissa Journal of Horticulture*, 31 (2): 65-68.
60. Nedunchezhiyan, M. and Srinivasulu Reddy, D. 2002. Nitrogen management in sweet potato (*Ipomoea batatas* L.) under rainfed conditions. *Indian Journal of Agronomy*, 47 (3): 449-454.
61. Nedunchezhiyan, M. and Satapathy, B.S. 2002. Effect of weed management practices on weed dynamics in sweet potato. *Journal of Root Crops*, 28 (2): 73-77.
62. Nedunchezhiyan, M. and Satapathy, B.S. 2002. A note on the effect of weed management practices on nutrient uptake of weeds in sweet potato. *The Orissa Journal of Horticulture*, 30 (2): 110-112.

63. Nedunchezhiyan, M., Misra, R.S. and Shivalingaswamy, T.M. 2002. Elephant foot yam (*Amorphophallus Paeoniifolius* (D.) Nicolson) as an intercrop in banana and papaya. *The Orissa Journal of Horticulture*, 30 (1): 80-82.
64. Nedunchezhiyan, M., Shivalingaswamy, T.M. and Naskar, S.K. 2002. Effect of sowing dates on biomass production and yield of yam bean (*Pachyrrhizus erosus* (L.) Urban genotypes. *Journal of Root Crops*, 28 (1): 26-29.
65. Misra, R.S., Nedunchezhiyan, M., Shivalingaswamy, T.M and Edison, S. 2002. Mass multiplication techniques for producing quality planting material of *Amorphophallus Paeoniifolius* (Dennst.) Nicolson (Araceae). *Aroideana*, 25: 78-87.
66. Naskar, S.K. and Nedunchezhiyan, M. 2002. Prospects of tuber crops in coconut garden in the state of Orissa. *Indian Coconut Journal*, 32 (11): 8-11.
67. Nedunzhiyan, M., Srinivasulu Reddy, D. and Ravi. A. 2000. Effect of sweet potato vine meal on the digestability of organic nutrients in pigs. *Journal of Root Crops*, 26 (2): 23-25.
68. Nedunzhiyan, M. and Srinivasulu Reddy, D. 2000. Correlation and regression studies in sweet potato (*Ipomoea batatas* L.). *Journal of Root Crops*, 26 (1): 34-37.
69. Ray, R.C. Nedunzhiyan, M. and Balagopalan, C. 2000. Micro organisms associated with post harvest spoilage of yams. *Annals of Tropical Research*, 22 (1&2): 31-40.
70. Nedunzhiyan, M. and Varma, S.P. and Ray, R.C. 1998. Estimation of critical period of crop-weed competition in sweet potato (*Ipomoea batatas* L.). *Advances in Horticultural Science*, 12: 101-104.
71. Nedunzhiyan, M. 1996. Ecological studies on weed flora associated with sweet potato. *The Orissa Journal of Horticulture*, 24: 69-73.
72. Nedunzhiyan, M. Varma, S.P. and Ray, R.C. 1996. Phytosociological studies of weed flora in taro. *Journal of Root Crops*, 22 (2): 128-137.
73. Nedunzhiyan, M. and Ray, R.C. 1996. Leaflet area estimation in yam bean. *Journal of Root Crops*, 22 (2): 128-137.
74. Nedunzhiyan, M. 1995. Influence of purple nut sedge on growth and yield of taro. *Journal of Root Crops*, 21 (2): 113-115.
75. Nedunzhiyan, M. and Mohan Kumar, C.R. 1994. Effect of pre-treatments in breaking dormancy and inducing sprouts in elephant foot yam. *Journal of root Crops*, 20 (2): 138-140.
76. Nedunzhiyan, M. and Sambasiva Reddy, A. 1993. Performance of pigeon pea genotypes at different plant densities under late sown rainfed conditions of Rayalaseema. *Indian Journal of Pulses Research*, 6 (2): 210-211.

#### Proceedings full papers

1. Nedunchezhiyan, M., Sankaran, M., Sureshkumar, P. and James George. 2012. Tuber crops as component crop in plantations under the integrated farming system approach. In: Souvenir cum Abstract Book of National seminar on Technologies for improving productivity of spices and plantation crops (Sankaran et al.), CARI, Port Blair, A & N Islands, pp. 72-80.
2. Vimala, B., Nedunchezhiyan, M. Ramanathan, S. and Jayaprakas, C.A. 2011. Evaluation of orange fleshed sweet potato for tuber yield and carotene content at different locations of Orissa. In: Proceedings of National Seminar on Climate change

- and food security: Challenges and opportunities for tuber crops (Eds. Sajeev et al.), CTCRI, Thiruvananthapuram, Kerala, pp. 157-160.
3. Vimala, B., Ramanathan, S., Nedunchezhiyan, M. and Jayaprakas, C.A. 2011. Performance of some promising sweet potato clones at different locations. In: Proceedings of National Seminar on Climate change and food security: Challenges and opportunities for tuber crops (Eds. Sajeev et al.), CTCRI, Thiruvananthapuram, Kerala, pp. 161-163.
  4. Ravindran, C.S., Suja, G. and Nedunchezhiyan, M. 2011. Tuber crops as component crops in cropping system. In: Proceedings of National Seminar on Climate change and food security: Challenges and opportunities for tuber crops (Eds. Sajeev et al.), CTCRI, Thiruvananthapuram, Kerala, pp. 235-239.
  5. Nedunchezhiyan, M. Misra, R.S. and Naskar, S.K. 2011. Zero tillage stand establishment of sweet potato: an option for intensive rice based cropping system. In: Proceedings of National Seminar on Climate change and food security: Challenges and opportunities for tuber crops (Eds. Sajeev et al.), CTCRI, Thiruvananthapuram, Kerala, pp. 256-260.
  6. Veena, S.S., Stephen, M.M., Nedunchezhiyan, M., John, N.S., Anjana Devi, I.P. and Jeeva, M.L. 2011. Microbial diversity in vermicompost and its utilization as potential bio-control agent. In: Proceedings of National Seminar on Climate change and food security: Challenges and opportunities for tuber crops (Eds. Sajeev et al.), CTCRI, Thiruvananthapuram, Kerala, pp. 394-398.
  7. Misra, R.S. and Nedunchezhiyan, M. 2011. Strategies for commercialization of tuber crops in eastern and Northeastern India. In: Proceedings of National Seminar on Climate change and food security: Challenges and opportunities for tuber crops (Eds. Sajeev et al.), CTCRI, Thiruvananthapuram, Kerala, pp. 593-596.
  8. Ramanathan, S., Anantharaman, M., and Nedunchezhiyan, M. 2011. Performance evaluation of greater yam (*Dioscorea alata*) accessions through farmers participatory approach in Andhra Pradesh and Orissa. In: Proceedings of National Seminar on Climate change and food security: Challenges and opportunities for tuber crops (Eds. Sajeev et al.), CTCRI, Thiruvananthapuram, Kerala, pp. 601-605.
  9. Srinivas, T., Nedunchezhiyan, M. and Misra, R.S. 2011. Marketing of taro in India. . In: Proceedings of National Seminar on Climate change and food security: Challenges and opportunities for tuber crops (Eds. Sajeev et al.), CTCRI, Thiruvananthapuram, Kerala, pp. 609-612.
  10. Sreekanth, A., Nedunchezhiyan, M., Laxminarayana, K. Misra, R.S., Rajasekhara Rao, K. and Sivakumar, P.S. 2010. Sustainable production of sweet potato and technology transfer for enhanced yields in Orissa. In: Proceedings of a workshop on Sustainable sweet potato production and utilization in Orissa, India (Eds) Attaluri, S., Janardhan, K.V. and Light, A. International Potato Centre, Bhubaneswar, India, pp. 11-18.
  11. Misra, R.S. and Nedunchezhiyan, M. 2010. Sustainable livelihoods through root and tuber crops. National Seminar on Sustainable agriculture and food security: challenges and opportunities, 29-30 November, 2010, Souvenir, OUAT, Bhubaneswar, Orissa, pp.112-117.
  12. Nedunchezhiyan, M. 2009. Tuber crops based cropping systems for resource utilization and income generation. In: Resource management in crops and cropping systems under changing climate, Souvenir, OUAT, Bhubaneswar, pp. 124-127.
  13. Nedunchezhiyan, M., Sivakumar, P.S., Misra, R.S. and Naskar, S.K. 2007. Curcuma starch: a tribalway of extraction and utilization. Achievements and opportunities in

- post harvest management and value addition in root and tuber crops (Eds. Padmaja et al.). CTCRI, ICAR, Thiruvananthapuram. pp. 176-178.
14. Misra, R.S., Nedunchezhiyan, M., Acharya, M. and Ranasingh, N. 2007. Post harvest management of *Amorphophallus* tubers. Achievements and opportunities in post harvest management and value addition in root and tuber crops (Eds. Padmaja et al.). CTCRI, ICAR, Thiruvananthapuram. pp. 150-154.
  15. Ranasingh, N., Acharya, M., Misra, R.S. and Nedunchezhiyan, M. 2007. Inhibition of pathogens causing tuber rot of *Amorphophallus* by *Trichoderma* isolates. Achievements and opportunities in post harvest management and value addition in root and tuber crops (Eds. Padmaja et al.). CTCRI, ICAR, Thiruvananthapuram. pp. 187-189.
  16. Sabarmatee, Acharya, M., Misra, R.S. and Nedunchezhiyan, M. 2007. Some value added products from *Amorphophallus* tubers. Achievements and opportunities in post harvest management and value addition in root and tuber crops (Eds. Padmaja et al.). CTCRI, ICAR, Thiruvananthapuram. pp. 61-64.
  17. Nedunchezhiyan, M. and Srinivasulu Reddy, D.S. 2006. Effect of time of planting and varieties on growth and yield of sweet potato (*Ipomoea batatas* L.) under rainfed conditions. In: Root and tuber crops: in nutrition, food security and sustainable environment. (Eds: Naskar, S.K., Nedunchezhiyan, M., Rajasekhara Rao, K., Sivakumar, P.S. Ray, R.C., Misra, R.S. and Mukherjee, A.). Regional Centre of CTCRI, ICAR, Bhubaneswar, pp 123-127.
  18. Nedunchezhiyan, M., Sivakumar, P.S., Naskar, S.K. and Misra, R.S. 2006. Sweet potato: A suitable crop for rice based cropping system. In: Root and tuber crops: in nutrition, food security and sustainable environment. (Eds: Naskar, S.K., Nedunchezhiyan, M., Rajasekhara Rao, K., Sivakumar, P.S. Ray, R.C., Misra, R.S. and Mukherjee, A.). Regional Centre of CTCRI, ICAR, Bhubaneswar, pp 135-138.
  19. Biswal, S., Pattnaik, A.K., Panigrahi, R.S. and Nedunchezhiyan, M. 2006. Staking options in yam: A system analysis. In: Root and tuber crops: in nutrition, food security and sustainable environment. (Eds: Naskar, S.K., Nedunchezhiyan, M., Rajasekhara Rao, K., Sivakumar, P.S. Ray, R.C., Misra, R.S. and Mukherjee, A.). Regional Centre of CTCRI, ICAR, Bhubaneswar, pp 162-166.
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### **Consultancy**

Consultancy on scientific methods of root and tuber crops cultivation was provided to the following organizations.

1. **CARE, India**
2. **Orissa Tribal Empowerment and Livelihoods Programme (OTELP),  
Bhubaneswar, Orissa**
3. **Orissa Watershed Development Mission (OWDM), Bhubaneswar, Orissa**
4. **PRAVA**

### **Technologies Developed :**

- Maize was identified as a suitable companion crop in greater yam. Greater yam + maize intercropping system recorded 36.7% higher tuber equivalent yield than sole greater yam with gross and net return of Rs. 93625/ha and Rs. 38535/ha, respectively. Inclusion of maize as intercrop in greater yam gave additional net return of Rs. 22055/ha.



- Greater yam + maize intercropping system, application of NPK @ 120:90:120 kg/ha along with mulching (2 t/ha dried farm waste) recorded higher yield and net returns.
- Close growing pulse crops like green gram, black gram and vegetable cow pea were found best intercrops in *Amorphophallus*.
- *Amorphophallus* + green gram intercropping system, application of NPK @ 80:60:80 kg/ha along with mulching (2 t/ha dried farm waste) was found optimum for higher yield and net profit.
- Greater yam sett size 200 g planted at 90 x 90 cm spacing was found optimum as intercrop under established coconut garden. The highest net return of Rs. 37750/ha and benefit cost ratio of 2.06 was realized in such intercropping.
- Sweet potato and red gram strip intercropping (3:3 rows) was found profitable under upland ecosystem. In this system produced higher tuber equivalent yield (13534 kg/ha), net return (Rs. 28075/ha) and benefit : cost ratio (3.24).
- Sweet potato can be successfully established under zero tillage after harvest of rice under low land ecosystem.
- 5-7 irrigation was found optimum for sweet potato in rice – sweet potato cropping system.
- Organic farming technology for the production of orange fleshed sweet potato.
- Cassava varieties Sree Jaya and H-165 were found suitable for intercropping in newly and established coconut garden.
- Sweet potato variety Samrot was found profitable for intercropping in newly and established coconut garden.
- Seed corm production techniques in *Amorphophallus*.
- Micro corm techniques in *Amorphophallus* production.
- Potassium nutrient management for sweet potato.
- Fertilizer boron requirement of sweet potato.
- Management of collar rot and other diseases of *Amorphophallus*.
- Two taro varieties Panisaru-1 and Panisaru-2 are released for cultivation in Orissa under wet land ecosystem.
- One sweet potato variety Kalinga is released for cultivation in Orissa.
- Orissa elite, a greater yam (*Dioscorea alata*) variety is released for cultivation in Orissa.