



**CENTRE OF ADVANCED FACULTY TRAINING
IN
AGRICULTURAL ENTOMOLOGY
DEPARTMENT OF AGRICULTURAL ENTOMOLOGY
TAMIL NADU AGRICULTURAL UNIVERSITY
COIMBATORE**

Introduction :

The seeds for the Department of Agricultural Entomology were sown in the year 1906 with the initiation of research on economic aspects of Agricultural Entomology in the then Madras Presidency. In 1912 an independent fledgling of the Entomology section was started and the first Government Entomologist, Dr. T. B. Fletcher, carried forward the activities at Coimbatore. Another milestone was achieved in the year 1920 with the start of undergraduate degree programme. The graduate students were offered courses on Agricultural Entomology viz., fundamentals and economic entomology, principles of pest control and management of field and horticultural crop pests. Dr. T. V. Ramakrishna Iyer, eminent entomologist laid the foundation for graduate teaching. In the year 1959, the Department started the M.Sc. (Ag.) programme in Agricultural Entomology. To further the education endeavour, Ph.D courses are being offered since 1961. The department was headed by eminent entomologists including two Vice Chancellors of the University. The department has now specialty areas viz., Acarology, Apiculture, Biological Pest Suppression, Host Plant Resistance, Integrated Pest Management, Pesticide toxicology and residue analysis, Insect chemical ecology and Storage entomology. In addition to the above activities, Centre of Advanced Faculty Training sponsored by ICAR is in operation since 1995.

Objective of CAFT:

- To develop human resources through imparting scientific training in advanced field of Entomology
- To improve teaching and research of the department of providing infrastructure facilities
- To develop instruction manuals and library
- To bring out research publications from the research projects funded by CAFT.

Faculty (as on 20.01. 2020)

S. No.	Name	Designation	Area of specialization
1.	Dr.K.Prabhakar	Director, CPPS	Plant Pathology
2.	Dr.N.Sathiah	Professor & Head cum Director (CAFT)	Biological Control
3.	Dr.S.Sridharan		Integrated Pest Management
4.	Dr.K. Ramaraju	Professor	Acarology
5.	Dr.S.Suresh	Professor	Taxonomy & Rice Entomology
6.	Dr. M. Kalyanasundaram	Dean AC&RI, Coimbatore	Biological Control
7.	Dr.S.Raguraman	Professor	Botanical Insecticides
8.	Dr.N.Ganapathy	Professor	Pulse Entomology
9.	Dr.K.N.Ragumoothy	Deputy Registrar (admin)Professor	Integrated Pest Management
10.	Dr.S.MohanKumar	Director (CPMB&B)	Biotechnology & Pest Management
11.	Dr.G.Umapathy	Professor	Pest Management & Apiculture
12.	Dr.J.S.Kennedy	Dean (SPGS)	Insect Pathogen
13.	Dr.S.Jeyarajan Nelson	Professor	Botanicals in Pest Management
14.	Dr.C.A.Mahalingam	Professor	Sericulture
15.	Dr.N.Muthukrishnan	Professor	Insect Ecology
16.	Dr.M.Muthuswami	Professor	Entomopathogens
17.	Dr.S.Manimegalai	Professor	Sericulture & Insect Pathology
18.	Dr.S.Jayarani	Professor	Acarology & Insect Morphology
19.	Dr.K.Bhuvanewari	Professor	Post Harvest Insect Management & Insecticide Toxicology
20.	Dr. V. Balasubramani	Professor	Biotechnology & Pest Management
21.	Dr.M.Murugan	Professor	Biotechnology & Insect Plant Interactions
22.	Dr.R.Vishnupriya	Professor	Acarology
23.	Dr.N.Chitra	Associate Professor	Biosystematics
24.	Dr.E.Sumathi	Associate Professor	Integrated Pest Management
25.	Dr.D.Rajabaskar	Assistant Professor	Virus Vector Interactions
26.	Dr.P.A.Saravannan	Assistant Professor	Apiculture
27.	Dr.B.Vinothkumar	Assistant Professor	Insecticide Toxicology
28.	Dr.A.Suganthi	Assistant Professor	Insecticide Toxicology
29.	Dr.T.Srinivasan	Assistant Professor	Integrated Pest Management
30.	Dr.T.Senguttuvan	Assistant Professor	Insecticide Toxicology

31.	T.Elaiyabharathi	Assistant Professor	Chemical Ecology
32.	Dr.M.Paramasivam	Assistant Professor	Agricultural Chemistry

Human Resource Development:

Particulars of Short Courses / Training program for HRD conducted during XI plan period

S. No	Year	Title	Period	Participants (No.)		
				Internal	External	Total
1.	2017-18	Innovative approaches and methods in Insect Biodiversity Conservation	Nov 30, 2017 to Dec 20, 2017 (21 days)	2	13	15
2.	2018-19	Facets in Biopesticide and botanical formulation Production	Nov 28, 2018 to Dec 18, 2018 (21 days)	4	12	16
3.		Capitalizing pesticide benefits for safer environment	Aug 23, 2018 to Sep 12, 2018 (21days)	2	8	10
4.	2019-20	Ecological and molecular approaches for Host Plant Resistance to insect pests	Nov 05, 2019 to Nov 25, 2019 (21days)	3	15	18

Infrastructure Development

- Equipments like binocular stereo microscopes, portable leaf area meter for post graduate laboratory for both undergraduate and postgraduate students' study purpose.
- Ultra short throw multimedia projector was added to the CAFT seminar hall for handling classes to trainees and students legibly. Most of the class oriented lectures of CAS Training are being delivered through LCD projector. All the post graduate students present their Credit Seminars and Term Papers using the LCD facilities.
- Lecture hall is fully furnished with complete set of Public Address System, colour TV and VCD/DVD player to supplement and improving the quality of the teaching and training.
- Laboratories were equipped with complete scratch proof writing board, programme marker boards, exhibition / display boards and high definition projection screens for effective teaching and training.

Library upgraded:

List of Books purchased during 2017-2018

1. Botanical Pesticides for Pest management – 1copy
2. Destructive and Useful Insects– 1copy
3. Ecological Entomology– 1copy
4. Elements of Economic Entomology– 1copy
5. Elements of Insect Ecology– 1copy
6. Forest Entomology– 1copy
7. Insect Biochemistry– 1copy
8. Insect Pests of Millets– 1copy
9. Insect Resistance Management– 1copy
10. Insect Viruses and Pest Management– 1copy
11. Introduction to General and Applied Entomology 3rd Edition– 1copy
12. Introduction to Insect Pest Management– 1copy
13. Medical Entomology– 1copy
14. Technological Innovations in Integrated Pest Management– 1copy
15. Theory and Practice of Integrated Pest Management– 1copy

List of Books purchased during 2018-2019

1. Immature Insects vol. I– 1copy
2. Introduction to study of Insects– 1copy

List of Books purchased during 2019-2020

1. Genetics Control of Insect Pests- 1 copy
2. Insect Pests of Farm Garden and Orchard- 2 copies
3. Integrated Pest Management Current Concept- 2 copies
4. Insect Pest Management-1 copy
5. General and Applied Entomology-1 copy
6. R D Gautam's Classical Biological Control- 2 copies
7. Agricultural Insect Pests and Their Control 2nd Edition- 2 copies
8. Objective Guide in Entomology-- 2 copies
9. Crop Protection Strategies- 2 copies
10. Emerging Crop pest Problems - 2 copies
11. Insect Biodiversity-1 copy

Publications

International

1. Dharanivasan, G., S. Sithanatham, M. Kannan, S. Chitra, K. Kathiravan and S. Janarthanan. 2017. Metal Oxide Nanoparticles Assisted Controlled Release of Synthetic Insect Attractant for Effective and Sustainable Trapping of Fruit Flies, *Journal of Cluster Science*, 28 (4): 2167-2183.
2. Hemalatha D, S. Prabhu, W.B.Rani and R. Anandham. 2018. Isolation and characterization of toxins from *Xenorhabdus nematophilus* against *Ferrisia virgata* (Ckll.) on tuberose, *Polianthes tuberosa*. *Toxicon*, 146:42-49.
3. Karthikeyan, S., A. Suganthi , K. Bhuvanewari and J.S. Kennedy . 2019. Validation and quantification of neonicotinoid insecticide residues in rice whole grain and rice straw using LC- MS/MS. *Food additives and contaminants: Part A*, 36 (2): 270-2777.
4. Khan, S. A., J. C. Reese, C. Pradeesh, M. Murugan and Y. Hayat. 2015. Categories of resistance in Wheat to Green bug *Schizaphis graminum* (Rondani) through a novel technique: Direct current electric penetration graph (DC-EPG). *Pakistan Journal of Botany*, 47: 307-312.
5. Devi, P.A., M. Paramasivam, and V. Prakasam. 2015. Degradation pattern and risk assessment of carbendazim and mancozeb in mango fruits. *Environmental Monitoring and Assessment*, 187:4142 - 4146.
6. Kowsika, S.,K. Ramaraju, S.Jeyarani and S. Mohan Kumar. 2018. Discovery and re-description of *Tetranychus taiwanicus* Ehara (Acari: Tetranychidae) from citrus in India. *International Journal of Acarology*, 44 (4-5): 50-61.
7. Madhu Sudhanan, E., S.V. Krishnamoorthy and S. Kuttalam.2017. Bioefficacy, phytotoxicity, safety to natural enemies and residues of flubendiamide in sugarcane (*Saccharum spp. L.*) under field conditions. *Crop Protection*, 100: 21-28.
8. Mariyammal, I., Seram, D., Samyuktha, S.M. A. Karthikeyan, M. Dhasarathan, J. Murukarthick, J.S. Kennedy, D Malarvizhi, T-J. yang, M. Pandiyan, N.senthil. 2019. *QTL mapping in Vigna radiata x Vigna umbellate* population uncovers major genomic regions associated with bruchid resistance. *Molecular Breeding*, 39: 110.
9. McCulloch, G. A., S. Mohankumar, S. Subramanian, T. Sonai Rajan, C. Rahul, R. Surendran, R. Gaurav, S. Chandrasekaran, G. J. Daghish and Gimme H. Walter. 2019. Contrasting patterns of phylogeographic structuring in two key beetle pests of stored grain in India and Australia. *Journal of Pest Science*, 92: 1249–1259.
10. Merlin Kamala, I. and J. S. Kennedy. 2018. Assessment on the incidence of two-spotted mite of jasmine, *Tetranychus urticae* Koch, and its natural enemies in Tamil Nadu. *International Journal of Acarology*, 44:4-5, 162-170.
11. Paramasivam, M M. Deepa, C. Selvi and S. Chandrasekaran. 2017. Dissipation kinetics and safety evaluation of tebuconazole and trifloxystrobin in tea under tropical field conditions, *Food Additives & Contaminants: Part A*, 34:12, 2155-2163.
12. Pavviya, A. and N. Muthukrishnan. 2017. Field evaluation of methoxyfenozide 24 SC against leaf miner, *Approaerema modicella* (Deventer) and its effect on predatory coccinellids of groundnut. *Legume Research*, 40 (5): 949-954.
13. Rafter, M.A., V. Muralitharan, V., S.Chandrasekaran, S. Mohankumar, G. J. Daghish, M. Loganathan and G. H. Walter 2019. Behaviour in the presence of resource excess—flight of *Tribolium castaneum* around heavily-infested grain storage facilities. *Journal of Pest Science*, 92: 1227 -1238.
14. Ramasubramanian, T. and M. Paramasivam. 2017. Determination and dissipation of fipronil and its metabolites in/on sugarcane crop. *International Journal of Environmental Analytical Chemistry*, 97: 1037-1052
15. Ramasubramanian, T. and M. Paramasivam. 2018. Persistence and metabolism of carbofuran in the soil and sugarcane plant. *Environmental Monitoring and Assessment*, 190(9):538.
16. Sambathkumar, S., C. Durairaj, S. Mohankumar, N. Ganapathy, B. Preetha, R. Aravintharaj. 2017. Food Ingestion and Utilisation Efficiency of Legume Pod Borer, *Maruca*

- vitrata Geyer (Lepidoptera: Crambidae) on Different Pulse Hosts. *African Entomology*, 25(2):395-412.
17. Sangeetha, B., V. G. Malathi, D. Alice, M. Suganthy and P. Renukadevi. 2018. A distinct seed-transmissible strain of tomato leaf curl New Delhi virus infecting Chayote in India. *Virus Research*, 258:81-91.
 18. Sanjeevi kumar, A. and N. Muthukrishnan. 2017. In-Vivo and field evaluation of spinetoram 12 SC against *Lampides boeticus* on pigeonpea. *Legume Research*, 40 (6): 1126-1132.
 19. Sonai Rajan, T., G.A. McCulloch, S. Mohankumar, S. Chandrasekaran and G.H. Walter. 2016. Development of microsatellite markers and a preliminary assessment of population structuring in the rice weevil, *Sitophilus oryzae* (L.). *Journal of Stored Products Research*, 66: 12-17.
 20. Sonai Rajan, T., V Muralitharan, G.J Darglish, S. Mohankumar, M.A. Rafter, S. Chandrasekaran, S. Mohan, D. Vimal, Chitra Srivastava, M Loganathan, GH Walter. 2018. Flight of three major insect pests of stored grain in the monsoonal tropics of India, by latitude, season and habitat. *Journal of Stored Products Research*, 76:43-50.
 21. Srinivasan, T. and Chandrikamohan. 2017. Population growth potential of *Bracon brevicornis* Wesmael (Braconidae: Hymenoptera): A Life table Analysis. *Acta Phytopathologica et Entomologica Hungarica*, 52(1):1-7.
 22. Stanley, J., S. Chandrasekaran, G. Preetha, S. Kuttalam and R.S. Jasmine. 2019. Management of cardamom borer, *Conogethes punctiferalis* Guenee and thrips, *Sciothrips cardamomi* Ramk using diafenthiuron and its residues in fresh and cured cardamom capsules. *International Journal of Pest Management*, 65:2, 97-104.
 23. Stanley, J., S. Chandrasekaran, G. Preetha, and K. Subaharan. 2018. Evidence of Male Pheromone in *Conogethes punctiferalis* (Lepidoptera: Pyralidae). *Journal of Entomological Science*, 53: 455-466.
 24. Suganthy, A. and K. Bhuvanewari. 2018. Method Validation and Application of Liquid Chromatography- Mass Spectrometry/Mass Spectrometry for Determination of Neonicotinoid Pesticide Residues in Tomato. *Journal of Chromatography Separation Technique*, 9 (2): 401.
 25. Suganthy, A., S. A. Nikita, J. Kousika, K. Bhuvanewari and S. Sridharan. 2018. Determination of thiamethoxam residues in banana stem and fruit through LC-MS/MS. *Environmental Monitoring Assessment*, 190 (5): 293.
 26. Suganthy, A., K. Bhuvanewari, and M. Ramya. 2018. Determination of neonicotinoid insecticide residues in sugarcane juice using LCMSMS. *Food Chemistry*, 15 (241):275-280.
 27. Tamilnayagan, T., M. Suganthy, P. Renukadevi and G. Malathi. 2019. Genetic Diversity of *Bemisia tabaci* (Hemiptera: Aleyrodidae) in Ash Gourd in India. *Journal of Entomological Science*, 54: 9-18.
 28. Venkidusamy, M., R. Jagadeesan, M.K., Nayak, S. Mohankumar, S. Chandrasekaran and P. J. Collin. 2018. Relative tolerance and expression of resistance to phosphine in life stages of the rusty grain beetle, *Cryptolestes ferrugineus*. *Journal of Pest Science*, 91: 277.
 29. Wenninger, E.J., S.Y. Emmert, K. Tindall, H. Ding, M. A. Boetel, D., Rajabaskar and S.D Eigenbrode. 2017. Aggregation Behavior and a Putative Aggregation Pheromone in Sugar Beet Root Maggot Flies (Diptera: Ulidiidae). *Journal of Insect Science*, 17(1): 29.
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 31. Adlin Pricilla Vasanthi, E., S. Jeyarajan Nelson, N. Muthukrishnan, A. Ramanathan and D. Uma. Effect of some tropical plant extracts against subterranean termite, *Odontotermes wallonensis* Wasmann (Termitidae: Isoptera). *Journal of Entomological Research*, 41 (4) : 377-382.
 32. Alfred Daniel, J. and K. Ramaraju. 2017. A study of three methods of sampling Chalcididae and Pteromalidae in major rice ecosystems of Tamil Nadu. *Journal of Experimental Zoology India*, 20 (2): 1037-1041.

33. Alfred Daniel, J. and K. Ramaraju. 2017. Diversity of chalcidids (Chalcididae: Hymenoptera) among three rice growing zones of Tamil Nadu, India. *Journal of Entomology and Zoology studies*, 5 (3): 541-546.
34. Alfred Daniel, J. and K. Ramaraju. 2018. A study on five sampling methods of parasitic hymenopterans in rice ecosystem. *Journal of Biological Control*, 32(3): 187-192.
35. Alfred Daniel, J. and K. Ramaraju. 2018. Dissipation of profenofos in/on tea leaves. *Pesticide research journal*, 30(1):98-101.
36. Alfred Daniel, J. and K. Ramaraju. 2018. Effect of profenofos 50 EC on parasitization of *Opius* sp. (Hymenoptera: Braconidae) on tea leaf miner *Tropicomyia thea* (Cotes). *Journal of entomological research*, 42(1), 87-92.
37. Alfred Daniel, J. and K. Ramaraju. 2018. Effect of profenofos 50 EC on tea leaf miner *Tropicomyia theae* (Cotes). *Annals of plant protection sciences*, 26(2): 231-235.
38. Alfred Daniel, J. and K. Ramaraju. 2018. Evaluation of Hexythiazox 5.45 EC against red spider mite *Oligonychus coffeae* nietner on tea. *Journal of entomological research*, 42 (4): 579-583.
39. Alfred Daniel, J., K. Ramaraju and A.P. Ranjith. 2019. On a collection of braconidae from three rice growing zones of tamil nadu, *Indian Journal of Entomology*, 81(1): 18-24.
40. Alfred Daniel, J., K. Ramaraju and S. Kuttalam. 2018. Fate of hexythiazox residues on tea leaves. *Indian Journal of Entomology*, 80(4): 1495-1499.
41. Alfred Daniel, J., K. Ramaraju, S. Mohan Kumar, P. Jeyaprakash and N. Chitra. 2019. Influence of weather on the parasitoid catches in three rice growing agroclimatic zones of Tamil Nadu, *Indian Journal of Entomology*, 81(1): 55-60.
42. Alfred Daniel, J., K. Ramaraju, V.K. Raseena Farsana and P.M. Sureshan. 2017. Diversity of pteromalids (Pteromalidae: Hymenoptera) among three rice growing zones of Tamil Nadu, *Annals of Plant Protection Sciences*, 25,(2) 298-303.
43. Alfred Daniel, J., K.Ramaraju, S.Mohankumar, P.Jeyaprakash and N. Chitra. 2019. Study of varietal preferences and seasonal incidence of parasitoids of rice plants. *Entomon*, 44(1): 65-72.
44. Amsagowri, V. and N. Muthukrishnan. 2017, Field evaluation of pre-mixture insecticide sulfoxaflor and chlorpyrifos for the rice leaf folder *Cnaphalocrosis medinalis* and its effect on coccinellids. *Oryza* 54 (1): 121 – 124.
45. Amsagowri, V., N Muthukrishnan AND C. Muthiah. 2019. Studies on the antibiosis mechanism of resistance in different rice accessions against yellow stem borer, *Scirpophaga incertulas* (Walker). *Journal of Entomological Research* 43 (1): 31-36.
46. Anjali, K., A. Suganthi, K. Bhuvaneshwari and M.Ganga. 2018. Survey on pests and pesticide usage pattern and studies on flubendiamide residues in market samples of exotic vegetables. *Madras Agricultural Journal*, 105 (7-9): 291-296.
47. Aruna, R., S. Jeyarani, S. Mohankumar and C. Durairaj. 2017. Study on antennal sensilla and host preference analysis of *Nilaparvata lugens* (Stal). *Journal of Entomology and Zoology Studies*, 5(3): 736-739.
48. Balaji, D. R., S. Jeyarani, K Ramaraju, S. Mohankumar and P.S. Shanmugam. 2018. Occurrence of South American tomato pinworm, *Tuta absoluta* (Meyrick) (Lepidoptera: Gelechiidae): An invasive pest in Tamil Nadu, India. *Journal of Entomology and Zoology Studies*, 6(2): 657-662.
49. Bharathi, K. and N. Muthukrishnan. 2017. Evaluation of Botanicals against Cotton Mealy Bug, *Phenacoccus solenopsis* Tinsley (Psuedococcidae: Hemiptera). *International Journal of Current Microbiology and Applied Sciences*, 6 (12): 1055-1061.
50. Bharathi, K. and N. Muthukrishnan. 2017. Survey and Records of Mealy Bugs Species on Cotton and Alternate Host of Key Mealy Bug *Phenacoccus solenopsis* Tinsley and its Natural Enemies Complex in Major Cotton Growing Areas of South Tamil Nadu, India. *International Journal of Current Microbiology and Applied Sciences*, 6 (12): 1047-1054.
51. Chandrasekar, K., N. Muthukrishnan and R.P. Soundararajan. 2017 Ecological engineering cropping methods for enhancing predator, *Cyrtorhinus lividipennis* (Reuter) and suppression of planthopper, *Nilaparvata lugens* (Stal) in rice- weeds as border cropping

- system. *Journal of Entomology and Zoology Studies*, 5(5): 1778-1782.
52. Chandrasekar, K., N. Muthukrishnan and R.P. Soundararajan. 2017. Ecological engineering cropping methods for enhancing predator, *Cyrtorhinus lividipennis* (Reuter) and Suppression of Planthopper, *Nilaparvata lugens* (Stal) in Rice-Weeds in Strip Cropping system. *Journal of Entomology and Zoology Studies*, 5 (5): 1788-1792.
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 55. Chitra, C., Vishnupriya,R. , Soundararajan, R.P. and Ramaraju,K. 2017. Seasonal incidence of leaf mite, *Oligonychus oryzae*. (Acari: Tetranychidae). *Journal of Entomology and Zoology Studies*, 5 (6): 2481-2484.
 56. Elango, K., S. Sridharan, P.A. Saravanan and S. Balakrishnan. 2018. Performance of *Trichogramma* egg parasitoids on castor semilooper *Achaea janata* and their conservation in pomegranate ecosystem. *International Journal of Advanced Biological Research*, 8(3): 358-362.
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 59. Gopalakrishnan, R., K. Bhuvaneswari, J. Kousika, A. Manivannan and A. Suganthi. 2018. Persistence and Dissipation Pattern of Dimethoate 30 EC in / on Foxtail Amaranthus and Spinach. *Madras Agricultural Journal*, 105 (1-3): 78-83.
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 61. Hemalatha, D., J. Jayaraj, M. Murugan, T. N. Balamohan, N. Senthil, C. Chinniah and K Suresh. 2018. Foraging performance of Indian honey bee *Apis cerana indica* (F.), during winter in Madurai district of Tamil Nadu, India. *Journal of Entomology and Zoology Studies*, 6 (3): 224-227.
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- quantification of neonicotinoid insecticide residues in rice whole grain and rice straw using LC- MS/MS. *Food additives and contaminants: Part A*, 36 (2): 270-2777.
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 73. Meenambigai, C., K. Bhuvaneshwari, R. Sangavi, K. Mohan Kumar and B. Vinoth Kumar. 2017. Dissipation pattern of flubendiamide in/on okra *Abelmoschus esculentus* (L) Moench fruits under climatic conditions of Western Tamil Nadu. *International Journal of Chemical Studies*, 5(6): 1804-1808.
 74. Meenambigai, C., K. Bhuvaneshwari, K. Mohan Kumar and R. Sangavi. 2017. Pesticides usage pattern of okra, *Abelmoschus esculentus* (L) Moench in Tamil Nadu. *Journal of Entomology and Zoology Studies*, 5(6): 1760-1765.
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Financial statement:

Expenditure under CAFT during three year action plan (2017-2020)

Head	2017-18	2018-19	2019-20 (as on 20.01.2020)
Operating cost of Training	397787	809775	636023
Recurring Contingency	363079	394297	90443
Non-Recurring contingency	---	699692	----
T.A.	29200	29200	8615
Library books	34043	35000	35000
TOTAL	825109	1938764	770081