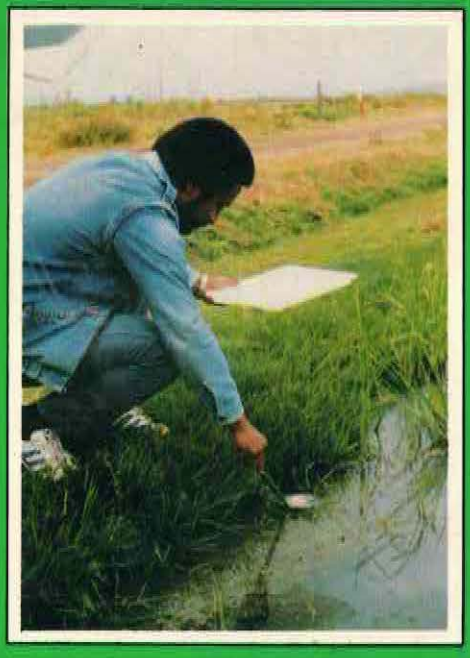
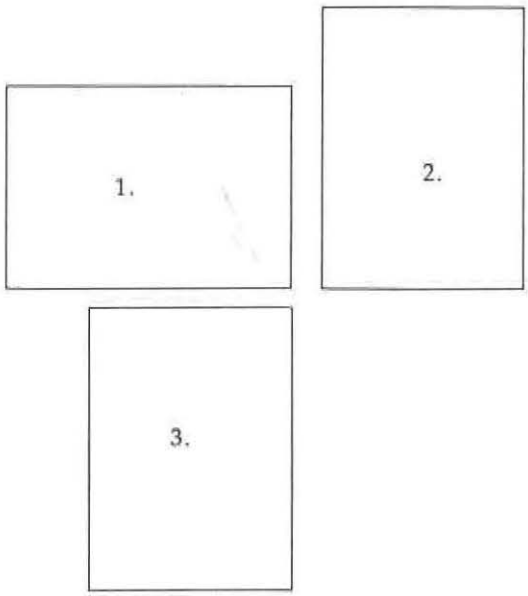


SUMMARY INFORMATION ON ARPPIS 1983–1990

The African Regional Postgraduate Programme in Insect Science (ARPPIS)

THE INTERNATIONAL CENTRE OF INSECT PHYSIOLOGY AND ECOLOGY
NAIROBI, KENYA



Cover

1. Dr. C. M. Mutero (left) teaching quantitative mosquito ecology to the 1990 ARPPIS Class.

2. Examination of mosquito larvae in sample collected by Mr. Dona Dakouo (Burkina Faso, left) and Mr. Leonard O. Nwoke (Nigeria, right), both of the 1990 ARPPIS Class.

3. Monitoring mosquito larvae on the Mwea Irrigation Scheme (Mr. Solomon Gebre is the 1990 ARPPIS Scholar nominated by Addis Ababa University, Ethiopia).

SUMMARY INFORMATION ON ARPPIS 1983–1990

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Contents

Introduction

There are many insect pests in tropical Africa that attack man, his crops or his livestock causing major economic and public health problems and often devastating national development programmes. Africa has depended on non-African entomologists to solve these problems for too long. Whilst such scientists have a role to play, the solution and management of the pest and vector problems of the continent must ultimately lie with well-trained and highly motivated African scientists capable of investigating the biology, ecology and behaviour of the insects involved. Sadly, little progress is being made because the number of indigenous entomologists is very small.

At present many young African entomologists go outside Africa for their graduate education because the opportunities and, most especially, the facilities for training in Africa are scarce and are scattered across the continent. Although the facilities are dispersed, and are not therefore used as effectively as they should be, they are not absent. What are required are new and innovative mechanisms to mobilize and harness the different strengths and abilities wherever they exist.

The African Regional Postgraduate Programme in Insect Science (ARPPIS) is just such a mechanism. ARPPIS was established at an international meeting held in Bellagio, Italy, in September 1981 attended by representatives from the International Centre of Insect Physiology and Ecology (ICIPE) and from African universities and other national and international bodies. It is now a fully functional collaborative graduate training network comprising the ICIPE and 15 African universities, which enables young African scientists to study for a Ph.D. degree in integrated pest and vector management. ARPPIS draws on the strength of a three-year degree programme in which students, registered at a participating university, carry out their research at the ICIPE under the direction and supervision of the university and ICIPE Scientists. Between 10 and 15 students are admitted to ARPPIS each year, giving a student population of up to 40 within the revolving 3-year programme. There have been eight classes since the first class was admitted in March 1983. The 72 students have come from 17 countries (Benin, Burkina Faso, Chad, Ethiopia, Ghana, Kenya, Malawi, Nigeria, Rwanda, Sierra Leone, Somalia, Sudan, Tanzania, Uganda, Zaire, Zambia and Zimbabwe).

It is the intention of ARPPIS that, after their graduation, the students will return to their home countries and contribute to building the capacity for research in insect science within their national programmes and universities.

However, the programme is increasingly aware that Africa is facing a brain drain of its best young scientists and that, unless ARPPIS provides some form of continuing career support, its objectives in training will not be fulfilled. For that reason an ARPPIS Scientific Network has been established that will foster and sustain the enthusiasm of its graduates.

MEMORANDUM OF AGREEMENT FOR THE PARTICIPATION OF..... IN THE AFRICAN REGIONAL POSTGRADUATE PROGRAMME IN INSECT SCIENCE (ARPPIS).

MEMORANDUM OF AGREEMENT FOR THE PARTICIPATION OF UNIVERSITY OF .....IN THE AFRICAN REGIONAL POSTGRADUATE PROGRAMME IN INSECT SCIENCE (ARPPIS)

In support of the philosophy and the underlying principles of the ARPPIS programme based at the International Centre of Insect Physiology and Ecology (ICIPE) in Nairobi, Kenya, and in accordance with the general terms of participation of African Universities agreed at the Bellagio Planning Conference in September 1981, the University of.....hereby comes to participate in the ARPPIS programme, as a collaborating university.

The specific terms for this collaboration would, among other general terms of the Bellagio Agreement include the following:

1. That the University of..... would sponsor candidates to the ARPPIS programme.

2. That the University of ..... would register candidates for their degrees under the ARPPIS programme; that such candidates would register through the specified procedure of the University.

3. That, where applicable, an acceptable system of course equivalent be worked out between the University of ..... postgraduate taught courses and the ARPPIS courses for the purpose of transfer of credit units.

4. The selected staff from the University of ..... would be appointed as Visiting Scientists to the ICIPE and to the ARPPIS programme; also that selected Scientific Staff from the ICIPE would be appointed to Honorary Academic positions in the University of..... according to the appointed procedures.

5. That a nominee of the Vice-Chancellor of the University of ..... be appointed a Coordinator, to act as a focal point for the ARPPIS programme at the University; and that this nominee should be the same as the Vice-Chancellor's appointee to the Academic Board of the ARPPIS programme.

6. That the parties to this Agreement may, from time to time by mutual consent, amend, modify, add to or delete any sections, phrases or words in this Memorandum.

7. That this Memorandum of Agreement becomes effective immediately for its execution by the appointed officers of the University of.....and the ICIPE. It shall remain in force until either party serves a written notice on the other of its intent to terminate it; in that event, this Agreement shall stand terminated at the end of one year from the date of issue of such notice.

Signed

For the University

.....

.....

.....

.....

For the International Centre of Insect
Physiology and Ecology (ICIPE)

.....

.....

.....

ARPPIS Participating Universities

Addis Ababa University	Ethiopia
Anambra State University of Technology	Nigeria
Dschang University Centre	Cameroon
Kenyatta University	Kenya
Makerere University	Uganda
Moi University	Kenya
Rivers State University of Science and Technology	Nigeria
University of Dar-es-Salaam	Tanzania
University of Ghana	Ghana
University of Ibadan	Nigeria
University of Khartoum	Sudan
University of Malawi	Malawi
University of Sierra Leone	Sierra Leone
University of Zambia	Zambia
University of Zimbabwe	Zimbabwe

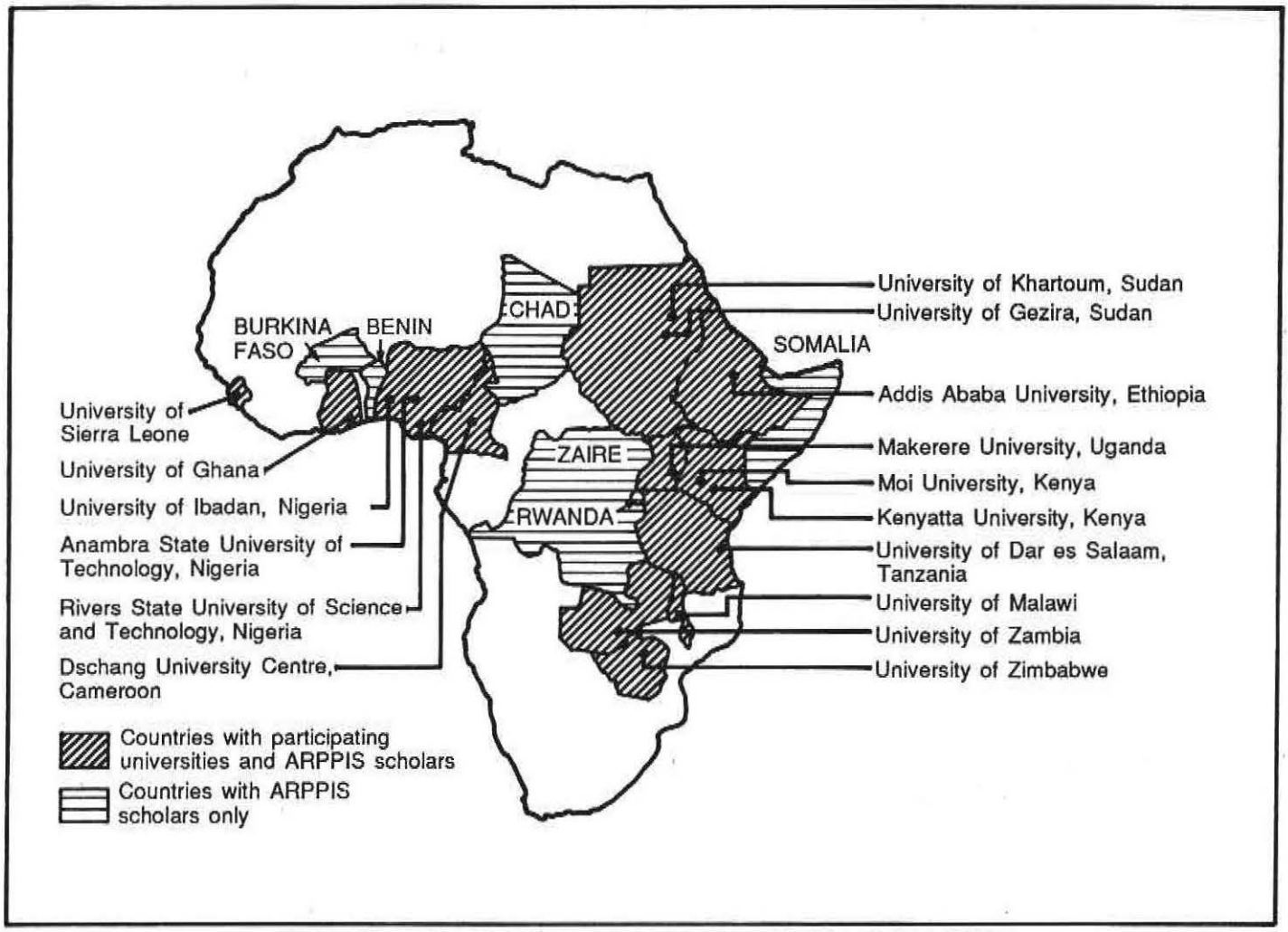
The following Universities have entered into discussions, with the intention of joining ARPPIS:

Sokoine University of Agriculture, Tanzania

Université de la Côte d'Ivoire, Côte d'Ivoire

University of Nairobi, Kenya

University of Yaounde, Cameroon.



UNIVERSITIES PARTICIPATING IN THE ARPPIS PROGRAMME, AND HOME COUNTRIES OF THE SCHOLARS.

ARPPIS Academic Board (1990)

Professor Thomas R. Odhiambo (Chairman)
Director, International Centre of Insect
Physiology and Ecology (ICIPE)
P.O. Box 30772
Nairobi, Kenya

Professor Z. T. Dabrowski (Secretary)
Training Coordinator,
ICIPE
P.O. Box 30772
Nairobi, Kenya

Professor R. I. Egwuatu
Head, Department of Horticultural
and Plant Protection
Anambra State University of Technology
Independence Layout
P.M.B. 01660
Enugu, Nigeria

Professor El Imam El-Khidir
Faculty of Agriculture
University of Khartoum
Shambat, Sudan

Professor Teferi Gemetchu
Department of Biology, Faculty of Science
Addis Ababa University
P.O. Box 1176
Addis Ababa, Ethiopia

Professor J. M. Gopo
Head, Department of Biological Sciences
University of Zimbabwe
Mount Pleasant
P.O. Box 167, Mount Pleasant
Harare, Zimbabwe

Professor K. ole Karei
Chief Academic Officer
Moi University
P.O. Box 3900
Eldoret, Kenya

Prof. R. Kumar
Dean, Post Graduate School
Rivers State University of Science and Technology
Department of Biological Sciences
P.M.B. 5080
Port Harcourt, Nigeria

Miss Edna Kunjeku
Coordinator,
ARPPIS M.Sc. Regional Centre for Southern Africa
Department of Biological Sciences
University of Zimbabwe
P.O. Box 167, Mount Pleasant
Harare, Zimbabwe

Professor Davindra K. Magon
Chairman, Zoology Department
Kenyatta University
P.O. Box 43844
Nairobi, Kenya

Professor Hector G. Morgan
Dean, Faculty of Pure and Applied Sciences
Fourah Bay College
University of Sierra Leone
Freetown, Sierra Leone

Dr. David C. Munthali
University of Malawi
Chancellor College
P.O. Box 280
Zomba, Malawi

Dr. J. Bayo Odebiyi
Reader, Department of Agricultural Biology
University of Ibadan
P.O. Box 8761
Ibadan, Nigeria

Dr. Ignatius Parh
Department of Plant Protection
Dschang University Centre
Dschang, Cameroon

Dr. S. Q. Quartey
Department of Zoology
University of Ghana
P.O. Box 82
Legon, Ghana

Professor Kailash N. Saxena (Representing the ARPPIS Board of Studies)
Programme Leader, Crop Pests Research Programme
ICIPE Mbita Point Field Station
P.O. Box 30
Mbita, Kenya

Professor A. Siwela
Deputy Vice-Chancellor
University of Zambia
P.O. Box 32379
Lusaka, Zambia

Dr. J. G. Yarro
University of Dar-es-Salaam
P.O. Box 35064
Dar-es-Salaam, Tanzania

In Attendance

Mrs. Rhoda A. Odingo
Chief Planning Officer
ICIPE
P.O. Box 30772
Nairobi, Kenya

Dr. Yaya O. A. Olaniran
Head, Institutional Building and Interactive Research Unit
ICIPE
P.O. Box 30772
Nairobi, Kenya

1989 ARPPIS Annual Report

The seventh ARPPIS Ph.D. class began its studies in March 1989 with ten scholars from five countries (Kenya, Nigeria, Somalia, Sudan and Tanzania). The cumulative total of ARPPIS scholars that have been registered up to 1989 is now 59 from 13 countries.

The courses in the teaching semester were taught by ICIPE scientists and visiting lecturers from the ARPPIS participating universities. Dr. K. J. Mbata (University of Zambia, Lusaka) taught Insect Functional Morphology; Professor R. Kumar (Rivers State University of Science and Technology, Port Harcourt, Nigeria) and Dr. R. K. Bagine (National Museums of Kenya, Nairobi) taught Insect Taxonomy; Dr. J. Allotey (RSUST) and Drs. C. M. Mutero and S. K. Firempong (ICIPE) taught Insect Ecology. Drs. G. P. Kaaya, M. O. Odindo and M. Brownbridge (ICIPE) taught Insect Pathology, and Drs. M. F. B. Chaudhury, E. Osir and R. K. Saini (ICIPE) taught Insect Physiology and Biochemistry. Each course was examined by a three-hour written paper; the papers and scripts were externally moderated by Dr. R. W. Mwangi (University of Nairobi, Kenya).

Five ARPPIS scholars received their degrees in 1989. Miss D. A. Adabie (1984) and Mr. B. Torto (1985) passed the final examination at the University of Ghana; Mr. C. B. Maranga (1984) and Mr. B. E. Wishitemi (1985) successfully defended their theses at Kenyatta University, and also Mrs. U. M. Elneima at the University of Khartoum. Three members of the 1986 ARPPIS M.Phil. Class, Mr. K. O. Kambona, Mr. B. O. Odongo and Mr. G. R. S. Ochiel, as well as Miss A. Ngi-Song of the 1987 Class, were successful in defending their theses at RSUST.

Two students of the 1989 ARPPIS Ph.D. Class, Miss R. B. Bob-Manuel and Mr. F. G. Nwilene, who are involved in the ICIPE/Copenhagen University research project on cassava mite population modelling (sponsored mainly by DANIDA), attended a course in Denmark on applied population dynamics at the Institute of Population Biology, Copenhagen University. They are to develop mathematical models for biological control agents of cassava green spider mite populations on cassava at Mbita Point Field Station.

In a collaborative activity between the ICIPE and the University of Bonn, West Germany, a research and training project is in progress on the development of integrated pest management strategies for the control of banana weevil and nematode problems in Tanzania. Within the project, two Tanzanian scientists with experience in banana pest management are being trained at the Ph.D. level. They will reinforce the national research system and work on the banana pest complex. The scientists who were identified and offered places in the 1989 ARPPIS Class are Mr. B. E. M. A. Uronu from the Tropical Pests Research Institute, Arusha, and Mr. A. A. S. Mbwana from Maruku Agricultural Research Station, Bukoba. After completing their coursework and examinations at the ICIPE Headquarters they have returned to Tanzania to undertake their Ph.D. research projects at Bukoba.

Nine ARPPIS students made presentations during the 19th ICIPE Annual Research Conference. They were: Mr. J. A. Davies-Cole, Mr. C. I. Kyorku and Mr. M. I. Mwangelwa (Tsetse); Mrs. E. N. Mwangi, Mrs. F. N. Ndonga, Mr. B. O. Odongo and Mr. J. Ogwang (Biological Control); Mr. H. Mahamat and Mr. B. Torto (Chemistry and Biochemistry).

The ARPPIS Academic Board met twice during the year, in July and December. The December board meeting was preceded by a one-day scientific meeting at which all second and third year Ph.D. students presented a paper on an aspect of their work. The December meeting also included the Fourth ARPPIS Distinguished Lecture which was given by Professor A. J. Ahiauzu, Vice-Chancellor of Rivers State University of Science and Technology.

Seven scholars of the 1986 Class were also awarded their certificates at a ceremony during the December board meeting: Mr. M. Gethi (Kenya), Mr. E. B. Karamura (Uganda), Mr. Munene wa Macharia (Kenya), Miss E. M. Minja (Tanzania), Mr. P. K. Muange (Kenya), Mrs. F. M. Ndonga (Kenya) and Mr. M. A. Njau (Tanzania).

ARPPIS Graduates

By the end of 1989, 40 Ph.D. scholars had been graduated from ARPPIS and 16 had been awarded their Ph.D. degrees at the Participating Universities. Five ARPPIS scholars had submitted their theses and were waiting to defend their work and 12 were finalizing their theses prior to submission. *All* ARPPIS graduates continue to work in Africa, 16 at Universities, 20 with national and four with international agricultural research institutions.

ARPPIS is determined to encourage its graduates to remain active scientists once they have received their degrees. A programme of continuing concern which offers intellectual and limited financial support has been developed. This programme includes a newsletter, arrangements, where necessary, for the word processing and publication of acceptable scholarly manuscripts in refereed internationally-recognized journals, and supported applications to the international donors.

The International Foundation for Science (IFS) Programme for small research grants for work in the scholar's home country and institution has been utilized.The first two ARPPIS applicants to IFS received awards, and three more applications are being considered.

The M.Phil. training programme for entomologists specializing in biological control has trained ten young scientists from six countries. These students came from national biological control research programmes, or from teaching institutions with a responsibility for teaching biological control.

Most of the graduates from this programme have returned to their home institutions,where seven are using their skills in biological control as research officers, one as a lecturer. Two of them (Miss R. B. Bob-Manuel and Mr. K. O. Kambona) have been admitted to the ARPPIS Ph.D. programme and are continuing their advanced training in biological control of the cassava green spider mite and locust, respectively.

Information about ARPPIS Scholars

Table 1. Distribution of 72 Ph.D. scholars from 17 countries

Country	1983	1984	1985	1986	1987	1988	1989	1990	Total
Benin	—	—	—	—	—	—	—	1	1
Burkina Faso	—	—	—	—	—	—	—	1	1
Chad	—	—	—	—	1	—	—	—	1
Ethiopia	—	—	1	—	—	—	—	2	3
Ghana	—	1	2	—	—	—	—	—	3
Kenya	3	3	2	4	5	2	2	2	23
Malawi	—	1	—	—	—	—	—	—	1
Nigeria	—	—	1	1	—	1	3	4	10
Rwanda	—	—	—	—	—	—	—	1	1
Sierra Leone	—	—	—	—	1	—	—	—	1
Somalia	—	—	—	—	—	—	1	—	1
Sudan	2	1	—	—	—	3	1	1	8
Tanzania	1	—	—	2	—	—	2	—	5
Uganda	2	2	—	1	1	1	—	—	7
Zaire	—	—	1	—	—	—	—	1	2
Zambia	—	—	—	—	1	2	—	—	3
Zimbabwe	—	—	—	—	—	—	—	1	1
Total	8	8	7	8	9	9	9	14	72

Table 2. Attachments of ARPPIS scholars to ICIPE research programmes

Programme/Unit	1983	1984	1985	1986	1987	1988	1989	1990	Total
Crop Pests	3	5	—	7	2	2	7	4	30
Livestock Ticks	2	1	1	—	3	1	1	1	10
Tsetse	1	2	3	1	2	2	—	1	12
Medical Vectors	1	—	2	—	2	3	—	3	11
Chemistry and Biochemistry	—	—	1	—	—	—	—	1	2
Sensory Physiology	—	—	—	—	—	1	1	1	3
Termites	1	—	—	—	—	—	—	—	1
Locust	—	—	—	—	—	—	—	3	3
Total	8	8	7	8	9	9	9	14	72

Table 3. Distribution of ten scholars from six countries registered in the ARPPIS/Rivers State University of Science and Technology M. Phil. programme specializing in biological control

	1985	1986	1987	Total
Cameroon	—	—	1	1
Kenya	—	2	—	2
Nigeria	2	1	—	3
Sierra Leone	—	—	2	2
Tanzania	—	—	1	1
Uganda	—	1	—	1
Total	2	4	4	10

Registration of ARPPIS Ph. D. Scholars

Scholar	Home country	University	Research programme
1983 Class			
Mr. R. K. Bagine	Kenya	Makerere	Termite
Miss W. S. Forawi	Sudan	Khartoum	Medical Vectors
Mr. S. Kyamanywa	Uganda	Makerere	Crop Pests
Mr. A. A. Latif	Sudan	Khartoum	Livestock Ticks
Mr. B. C. Njau	Tanzania	Dar-es-Salaam	Livestock Ticks
Mr. J. H. P. Nyeko	Uganda	Makerere	Tsetse
Mr. S. H. Okech	Kenya	Rivers State	Crop Pests
Mr. J. B. Okeyo-Owuor	Kenya	Dar-es-Salaam	Crop Pests
1984 Class			
Miss D. A. Adabie	Ghana	Ghana	Tsetse
Mr. W. J. Bahana	Uganda	Makerere	Crop Pests
Mrs. U. M. Elneima	Sudan	Khartoum	Tsetse
Mr. L. M. Kantiki	Malawi	Malawi	Crop Pests
Mr. C. B. Maranga	Kenya	Kenyatta	Livestock Ticks
Mr. J. H. Nderitu	Kenya	Dar-es-Salaam	Crop Pests
Mr. M. W. Ogenga-Latigo	Uganda	Makerere	Crop Pests
Mr. J. F. Omollo	Kenya	Dar-es-Salaam	Crop Pests
1985 Class			
Mr. I. G. Aniedu	Nigeria	Rivers State	Medical Vectors
Mr. M. Basimike	Zaire	Rivers State	Medical Vectors
Mr. C. A. Kyorku	Ghana	Ghana	Tsetse
Mrs. R. C. Sang	Kenya	Sierra Leone	Tsetse
Mr. G. Tikubet	Ethiopia	Sierra Leone	Tsetse
Mr. B. Torto	Ghana	Ghana	Chemistry and Biochemistry
Mr. B. E. Wishitemi	Kenya	Kenyatta	Livestock Ticks
1986 Class			
Miss G. O. Akpokodje[1] (withdrew from ARPPIS)	Nigeria	Ibadan	Crop Pests
Mr. M. Gethi	Kenya	Kenyatta	Crop Pests
Mr. E. B. Karamura[1]	Uganda	Makerere	Crop Pests
Mr. M. wa Macharia	Kenya	Moi	Crop Pests
Miss E. M. Minja	Tanzania	Dar-es-Salaam	Crops Pests
Mr. P. K. Muange	Kenya	Moi	Tsetse
Mrs. F. M. Ndonga[1]	Kenya	Kenyatta	Crop Pests
Mr. M. A. Njau	Tanzania	Dar-es-Salaam	Crop Pests

Scholar	Home country	University	Research programme
1987 Class			
Mr. J. O. Davies-Cole	Sierra Leone	Sierra Leone	Tsetse
Mr. H. H. Mahamat	Chad	Sierra Leone	Medical Vectors
Mr. S. K. Mbogo	Kenya	Kenyatta	Livestock Ticks
Mr. T. N. Murega[1]	Kenya	Rivers State	Crop Pests
Mr. M. I. Mwangelwa	Zambia	Zambia	Tsetse
Mrs. E. N. Mwangi	Kenya	Kenyatta	Livestock Ticks
Mrs. V. C. Nyambati	Kenya	Kenyatta	Medical Vectors
Mr. J. Ogwang[1]	Uganda	Rivers State	Crop Pests
Mr. H. Oranga	Kenya	Moi	Livestock Ticks/ Biomathematics
1988 Class			
Miss M. Chumvwa (Mrs. M. Taguma)	Zambia	Zambia	Crop Pests
Mr. S. M. Kheir	Sudan	Khartoum	Livestock Ticks
Mr. A. M. A. Malik	Sudan	Khartoum	Crop Pests
Mr. C. F. Mugoya	Uganda	Rivers State	Sensory Physiology
Mr. K. Mugwe (withdrew from ARPPIS)	Kenya	Moi	Medical Vectors
Mr. A. E. Onyido	Nigeria	Rivers State	Medical Vectors
Mrs. B. A. Rapuoda	Kenya	Kenyatta	Medical Vectors
Mr. S. Siziya	Zambia	Zambia	Biomathematics/ Tsetse
Mr. I. M. I. Abu Zinid	Sudan	Khartoum	Tsetse
1989 Class			
Mr. A. El Badawi	Sudan	Khartoum	Crop Pests
Mrs. D. S. Bawo	Nigeria	Rivers State	Sensory Physiology
Miss R. B. Bob-Manuel	Nigeria	Rivers State	Cassava Spider Mite[2]
Mr. A. N. Duale	Somalia	Rivers State	Crop Pests
Mr. H. K. Kiara	Kenya	Rivers State	Livestock Ticks
Mr. A. A. S. Mbwana	Tanzania	Kenyatta	Banana Nematodes[3]
Mr. E. A. R. Ndhine	Kenya	Kenyatta	Crop Pests
Mr. F. G. Nwilene	Nigeria	Rivers State	Cassava Spider Mite[2]
Mr. B. Uronu	Tanzania	Kenyatta	Banana Weevils[3]
1990 Class			
Mr. D. Dakouo	Burkina Faso		Crop Pests
Mr. S. C. Dossa	Benin		Medical Vectors

Scholar	Home country	University	Research programme
Mr. S. Gebre	Ethiopia		Livestock Ticks
Mr. K. K. O. Kambona	Kenya		Locust/Biological Control
Mr. J. Kayitare	Rwanda		Crop Pests (Bean Fly)
Mrs. E. U. Kenya	Nigeria		Biochemistry
Mr. S. K. Meressa	Ethiopia		Tsetse
Mr. A. S. Mohmed	Sudan		Locust/Biological Control
Mr. M. Mugunga	Zaire		Medical Vectors/ Biological Control
Ms. A. R. Mutambara	Zimbabwe		Crop Pests (Biological Control)
Mr. L. O. Nwoke	Nigeria		Sensory Physiology
Mr. D. O. Ogoyi	Kenya		Chemistry and Biochemistry
Ms. E. O. Oladimeji	Nigeria		Locust
Mr. R. Uzakah	Nigeria		Crop Pests (Banana Weevil Semiochemicals)

[1]*Student sponsored through the Africa-wide Biological Control Programme (IITA).*
[2]*Research support by the DANIDA-funded ICIPE-University of Copenhagen project on modelling cassava green spider mite populations.*
[3]*Students with the BMZ-funded ICIPE-Bonn University projects on IPM strategies for banana weevils and nematodes.*

Registration of ARPPIS M.Phil. Scholars

All M.Phil. scholars were registered at Rivers State University of Science and Technology, Port Harcourt, Nigeria, and worked with the Biological Control Sub-programme of the ICIPE Crop Pests Research Programme.

Scholar	Home country
1985 Class	
Miss R. B. Bob-Manuel	Nigeria
Miss E. Nwofor	Nigeria
1986 Class	
Mr. P. N. Amifor	Nigeria
Mr. K. O. Kambona	Kenya
Mr. G. R. S. Ochiel	Kenya
Mr. B. O. Odongo	Uganda
1987 Class	
Mr. S. I. Kamara	Sierra Leone
Mr. A. B. F. Kanu	Sierra Leone
Mr. J. Mbapila	Tanzania
Miss A. Ngi-Song	Cameroon

Student Supervision

Scholar	University supervisor	ICIPE supervisors	
		First	Second
1983 Ph.D. Class			
Bagine, R.	Prof. D. Pomeroy	Dr. R. Dransfield	(Dr. M. Ritchie)[1]
Forawi, W.	Dr. El Wasila	Dr. J. Kaddu	Dr. M. Mutinga
Kyamanywa, S.	Prof. C. Baliddawa	Dr. J. Ampofo	Dr. E. Omollo
Latif, A.	Prof. M. Magzoub	Dr. R. Newson	Dr. M. Cunningham
Njau, B.	Dr. A. Mutani	Dr. M. Nyindo	Dr. M. Cunningham
Nyeko, J.	Prof. G. Ssenyonga	Dr. T. Golder	Dr. L. Otieno
Okech, S.	Prof. R. Kumar	Prof. K. Saxena	Dr. G. Oloo
Okeyo-Owuor, J.	Prof. D. Griffiths	Dr. G. Oloo	Prof. K. Saxena
1984 Ph.D. Class			
Adabie, D.	Prof. W. Coker	Dr. R. Dransfield	Dr. M. Chaudhury
Bahana, J.	Prof. E. Tukahirwa	Dr. G. Oloo	Dr. K. Seshu Reddy
Elneima, U.	Prof. M. Magzoub	Dr.L. Otieno	Dr. T. Dhadialla
Kantiki, L.	Dr. D. Munthali	Prof. K. Saxena	Dr. J. Ampofo
Maranga, C.	Dr. R. Okello	Dr. P. Capstick	Dr. M. Nyindo
Nderitu, J.	Prof. H. Kayumbo	Prof. K. Saxena	Prof. J. Mueke
Ogenga-Latigo, M.	Prof. C. Baliddawa	Dr. J. Ampofo	(Dr.B. Khaemba)
Omollo, J.	Prof. H. Kayumbo	Prof. K. Saxena	Dr. M. Odindo
1985 Ph.D. Class			
Aniedu, I.	Prof. R. Kumar	Dr. M. Mutinga	Dr. C. Mutero
Basimike, M.	Prof. R. Kumar	Dr. M. Mutinga	Dr. C. Mutero
Kyorku, C.	Prof. W. Coker	Dr. R. Dransfield	Dr. T. Golder
Sang, R.	Prof. H. Morgan	Dr. L. Otieno	(Dr. P. Tukei)
Tikubet, G.	Prof. H. Morgan	Dr. R. Dransfield	Dr. L. Otieno
Torto, B.	Dr. W. Phillips	Prof. A. Hassanali	Prof. K. Saxena
Wishitemi, B.	Dr. R. Okello	Dr. P. Capstick	Dr. A. Mongi
1986 Ph.D. Class			
Akpokodje, G.	Dr. J. Odebiyi	Dr. R. Ochieng	Prof. K. Saxena
Gethi, M.	Prof. J. Mueke	Dr. J. Ampofo	Dr. E. Omolo
Karamura, E.	Prof. E. Tukahirwa	Prof. K. Saxena	Dr. G. Oloo
Macharia, M.	Dr. B. Khaemba	Dr. K. Seshu Reddy	Dr. G. Unnithan
Minja, E.	Prof. H. Kayumbo	Dr. E. Omolo	Dr. J. Ampofo
Muange, P.	Dr. B. Khaemba	Dr. R. Dransfield	Dr. M. Chaudhury
Ndonga, F.	Dr. J. Mueke	Dr. G. Oloo	Dr. K. Seshu Reddy
Njau, M.	Prof. J. Mainoya	Dr. G. Unnithan	Dr. E. Kokwaro

Scholar	University supervisor	ICIPE supervisors	
		First	Second
1987 Ph.D. Class			
Davies-Cole, J.	Prof. H. Morgan	Dr. M. Chaudhury	Dr. G. Kaaya
Mahamat, H.	Prof. H. Morgan	Dr. N. Massamba	Prof. A. Hassanali
Mbogo, S.	N/A[2]	Dr. E. Osir	Dr. A. Mongi
Murega, T.	Prof. R. Kumar	Dr. Z. Nyiira	Dr. V. Okoth
Mwangelwa, M.	Dr. K. Mbata	Dr. R. Dransfield	Dr. L. Otieno
Mwangi, E.	N/A	Dr. R. Newson	Dr. G. Kaaya
Nyambati, V.	N/A	Dr. N. Massamba	Dr. M. Mutinga
Ogwang, J.	Prof. R. Kumar	Dr. M. Odindo	Dr. M. Brownbridge
Oranga, H.	Prof. M. Patel	Dr. S. Nokoe	Prof. O. Dipeolu
1988 Ph.D. Class			
Chumvwa, M.	Dr. D. Lungu	Prof. K. Saxena	Dr. R. Pathak
Kheir, S.	N/A	Prof. O. Dipeolu	Dr. A. Mongi
Malik, A.	N/A	Dr. G. Kaaya	Dr. M. Odindo
Mugoya, C.	Prof. R. Kumar	Dr. S. Waladde	Prof. K. Saxena
Mugwe, K.	Prof. R. Kumar	Dr. E. Osir	Dr. L. Otieno
Onyido, A.	Prof. R. Kumar	Dr. M. Mutinga	Dr. M. Smalley
Rapuoda, B.	Prof. J. Mueke	Dr. C. Mutero	Dr. M. Mutinga
Siziya, S.	Prof. J. Moore	Dr. B. Williams	Dr. R. Dransfield
Abu Zinid, I.	N/A	Dr. R. Dransfield	Dr. G. Kaaya
1989 Ph.D. Class			
El Badawi, A.	Prof. E. El Khidir	Dr. R. Pathak	Dr. M. Alghali
Bawo D.	Prof. R. Kumar	Dr. S. Waladde	Dr. E. Kokwaro
Bob-Manuel, R.	Prof. R. Kumar	Dr. M. Odindo	Dr. S. Nokoe
Nwilene F.	Prof. R. Kumar	Dr. M. Odindo	Prof. Z. T. Dabrowski
Duale, A.	Dr. B. Okwakpam	Dr. M. Chako	Dr. G. Oloo
Kiara, H.	Dr. J. Allotey	Dr. S. Essuman	Dr. E. Osir
Mbwana, A.	Dr. G. Waudo	(Prof. R. Sikora)	Dr. K. Seshu-Reddy
Ndhine, E.	Prof. J. Mueke	Dr. M. Chako	Dr. G. Oloo
Uronu, B.	Prof. J. Mueke	Dr. K. Seshu-Reddy	(Dr. G. Madel)
1985 M.Phil. Class			
Bob-Manuel, R.	Prof. R. Kumar	Dr. L. Rogo	Dr. Z. Nyiira
Nwofor, E.	Prof. R. Kumar	Dr. R. Ochieng	Dr. Z. Nyiira

Scholar	Home country	University	Research programme
		First	Second
1986 M.Phil. Class			
Amifor, P.	Prof. R. Kumar	Dr. J. Ampofo	Dr. S. Firempong
Kambona, K.	Prof. R. Kumar	Dr. L. Rogo	Dr. W. Lwande
Ochiel, G.	Prof. R. Kumar	Dr. G. Oloo	Dr. J. Okeyo-Owuor
Odongo, B.	Prof. R. Kumar	Dr. M. Odindo	Dr. M. Brownbridge
1987 M.Phil. class			
Kamara, S.	Prof. R. Kumar	Dr. M. Odindo	Dr. M. Brownbridge
Kanu, A.	Prof. R. Kumar	Dr. M. Brownbridge	Dr. M. Odindo
Mbapila, J.	Prof. R. Kumar	Dr. M. Brownbridge	Dr. M. Odindo
Ngi-Song, A.	Prof. R. Kumar	Dr. S. Nokoe	Dr. M. Brownbridge

[1]*Names of supervisors who are not ICIPE staff members are given in brackets.*
[2]*N/A—Supervisor not yet appointed.*

Research Projects of ARPPIS Scholars

All scholars were engaged on Ph.D. projects, unless indicated.

Termite Research

1983 Class

Mr. R. K. Bagine	Biosystematic studies of the termite genus *Odontotermes* with special reference to Kenya

Medical Vectors

1983 Class

Miss W. S. Forawi	Studies on *Leishmaniae* of lizards

1985 Class

Mr. I. G. Aniedu	Ecology of malaria vectors in relation to an irrigation scheme in Baringo District, Kenya
Mr. M. Basimike	Studies on the factors affecting the distribution and abundance of phlebotomine sandflies in a leishmaniasis endemic focus in Baringo District, Kenya

1987 Class

Mr. H. H. Mahamat	The biochemical taxonomy of phlebotomine sandflies (Diptera: Psychodidae) in Kenya
Mrs. V. C. Nyambati	Inter-relationships between *Leishmania* species: molecular karotype analysis

1988 Class

Mr. A. E. Onyido	The ecology of *Sergentomyia garnhami*: a vector of leishmaniasis in Kenya
Mrs. B. A. Rapuoda	Ecological and behavioural studies of mosquito species in the Mwea Irrigation Scheme, with special emphasis on *Anopheles arabiensis*

Tsetse

1983 Class

Mr. J. H. P. Nyeko	The influence of mode of transmission of *Trypanosoma congolense* on the stability and induction of resistance to Samorin

1984 Class

Mrs. U. M. Elneima	Characterization of different strains of *Trypanosoma congolense* collected from the Lambwe Valley, Western Kenya and Nguruman area, Maasailand, Kenya
Miss D. A. Adabie	Pupal ecology and the role of predators and parasitoids in natural population regulation of *Glossina pallidipes* at Nguruman, Kenya

1985 Class

Mr. C. A. Kyorku	Trapping studies on *Glossina longipennis* Cortie at Nguruman, southwestern Kenya
Mrs. R. C. Sang	*In-vitro* studies on the virus-like particles (VLPs) of the tsetse fly *Glossina pallidipes* Austen (Diptera: Glossinidae)
Mr. G. Tikubet	The ecology of *Glossina* spp. and trypanosomiasis challenge in southwestern Ethiopia

1986 Class

Mr. P. K. Muange	Factors affecting the pupal distribution and mortality in a natural population of *Glossina pallidipes* Austen at Nguruman, Kenya

1987 Class

Mr. J. O. Davis-Cole	Some aspects of the mating behaviour of *Glossina morsitans morsitans* Westwood and *G. pallidipes* Austen
Mr. M. I. Mwangelwa	The ecology and vectorial capacity of *Glossina fuscipes fuscipes* on Rusinga Island and along the shore of Lake Victoria

1988 Class

Mr. K. Mugwe	Factors involved in trypanosome differentiation in the tsetse midgut (withdrew from ARPPIS in 1989)
Mr. S. Siziya	Modelling the movement and distribution of tsetse flies on the Nguruman Escarpment, Kenya
Mr. I. M. I. Abu Zinid	Predation of tsetse in the vicinity of traps used for the control of *Glossina pallidipes* Austen

Livestock Ticks

1983 Class	
Mr. A. A. Latif	Host relationships of the tick *Amblyomma variegatum* in cattle and rabbits
Mr. B. C. Njau	Studies on the resistance acquired by rabbits experimentally infested with *Rhipicephalus evertsi*
1984 Class	
Mr. C. B. Maranga	Studies of *Rhipicephalus appendiculatus* Neumann immunity in goats
1985 Class	
Mr. B. E. Wishitemi	Induction of immunity in sheep to *Rhipicephalus appendiculatus* Neumann antigens
1987 Class	
Mr. S. K. Mbogo	Induction of resistance to ticks by the immunization of their hosts with commercially available moulting hormone, and other tick antigens
Mrs. E. N. Mwangi	The ecology of non-parasitic stages of *Rhipicephalus appendiculatus* and other ticks of livestock, and the role of predators, parasites, pathogens and climatic factors, in the regulation of natural populations
Mr. H. Oranga	Stochastic modelling of the impact of tick infestation on cattle productivity under natural field conditions on Rusinga Island
1988 Class	
Mr. S. M. Kheir	Mechanisms of cutaneous reactions in cattle infested with *Rhipicephalus appendiculatus*
1989 Class	
Mr. H. K. Kiara	Membrane bound proteins of the mid-gut of *Amblyomma variegatum* Fabricius, 1794 (Acarina Ixodidae): Proteins responsible for induction of immune protection of the host against infestation of homologous and heterologous species

Crop Pests

1983 Class

Mr. S. Kyamanywa	Ecological factors governing insect pest populations in maize and cowpea crop mixtures with special reference to the bean flower thrips *Megalurothrips sjostedti*
Mr. S. H. Oketch	Colonizing responses in *Maruca testulalis* to different cowpea cultivars in relation to their resistance or susceptibility
Mr. J. B. Okeyo-Owuor	Population ecology of the legume pod borer *Maruca testulalis* in relation to its natural enemies on cowpea in Western Kenya

1984 Class

Mr. J. H. Nderitu	Responses of the common bean (*Phaseolus vulgaris*) cultivars to beanflies (Diptera: Agromyzidae)
Mr. M. W. Ogenga-Latigo	The influence of some cultural practices and aphid natural enemies on the infestation of the common bean (*Phaseolus vulgaris*) by the bean aphid (*Aphis fabae*)
Mr. L. M. Kantiki	Studies on some aspects of the biology and feeding behaviour of *Eldana saccharina* Walker (Lepidoptera: Pyralidae) on one maize and one sorghum cultivar
Mr. W. J. Bahana	Bioecological studies on *Dentichasmias busseolae* (Hymenoptera: Ichneumonidae) the parasitoid of *Chilo partellus* and its potential for biological control
Mr. J. F. Omollo	The biology and host-parasite relationships of an entomogenous nematode, *Panagrolaimus* sp

1986 Class

Miss E. M. Minja	Studies on the effect of intercropping sorghum and cowpea on the population pattern of the stem borer complex
Miss G. O. Akpokodje	Orientation and feeding behaviour of phytoseiid predators on cassava green spider mites (*Mononychellus*) (withdrew from ARPPIS in 1988)
Mrs. F. M. Ndonga	Population dynamics of the cassava green spider mite *Mononychellus tanajoa* in relation to its natural enemies

Mr. E. B. Karamura	Studies on the orientation, feeding behaviour and development of the cassava green spider mite *Mononychellus tanajoa* (Acari: Tetranychidae)
Mr. M. wa Macharia	Crop losses in maize caused by the maize stem borer *Busseola fusca* Fuller (Lepidoptera: Noctuidae) in the Rift Valley, Kenya
Mr. M. Gethi	The effect of intercropping resistant and susceptible cowpea cultivars with maize, and time of planting on infestation and damage by the legume pod borer, *Maruca testulalis*
Mr. M. A. Njau	Endocrinology of development and reproduction in the maize stem borer, *Busseola fusca* Fuller (Lepidoptera: Noctuidae)
Miss E. Nwofor (M. Phil.)	The biology and behaviour of *Neoseilus idaeus* (Denmark and Muma) (Acarina: Phytoseiidae) reared on natural and artificial media
Miss R. B. Bob-Manuel (M. Phil.)	A morphometric study of the cassava green spider mite complex, *Mononychellus* spp (Acari: Tetranychidae) in Africa
1987 Class	
Mr. T. N. Murega	Genetic incompatibilities among populations of the cassava green mite complex, *Mononychellus* spp. (Acarina: Tetranychidae) and their implications for the taxonomy of the mite
Mr. J. Ogwang	The survival of *Nosema* sp. under field conditions and its effects on the reproductive potential of *Chilo partellus*
Mr. P. N. Amifor (M. Phil.)	Biology and predation efficiency of an aphidophagous coccinellid *Cheilomenes lunata* on the cowpea aphid (*Aphis craccivora*)
Mr. B. O. Odongo (M. Phil.)	An entomophathogenic fungus (Fungi Imperfecti) as a potential biocontrol agent of *Mononychellus tanajoa*
Mr. K. O. Kambona	A biochemical investigation of the taxonomy of the cassava green spider mite *Mononychellus* spp. (Acari: Tetranychidae) in Kenya
Mr. G. R. S. Ochiel (M. Phil.)	Biology of *Trichogramma* species near *exiguum* Pinto and Platner (Hymenoptera: Trichogrammatidae) on some lepidopterous hosts in South Nyanza, Kenya

1988 Class

Miss M. Chumvwa	Contribution, and inheritance, of the major components of resistance in certain maize cultivars to the stem borer *Chilo partellus*
Mr. A. M. A. Malik	Studies on some pathological aspects of the fungus *Beauveria bassiana* on the legume pod borer *Maruca testulalis*
Mr. A. B. F. Kanu (M. Phil.)	The pathogenicity of local isolates of *Bacillus thuringiensis* to some non-target invertebrate organisms
Mr. S. I. Kamara (M. Phil.)	The development of artificial media for the production of *Hirsutella* sp. (Fungi Imperfecti) for the control of the cassava green spider mite, *Mononychellus tanajoa*
Mr. J. Mbapila (M. Phil.)	The infectivity of *Beauveria bassiana* on *Chilo partellus*
Miss A. Ngi-Song (M. Phil.)	The dynamics of *Chilo partellus* parasitized by a Kenyan strain of *Trichogramma* sp. under experimental conditions using sorghum as the host plant

1989 Class

Miss R. B. Bob-Manuel	Effect of an entomopathogenic fungus, *Hirsutella thompsonii* Fisher (Fungi Imperfecti), on the dynamics and control of cassava green mite (CGM) —*Mononychellus tanajoa* (Bondar) (Acari: Tetranychidae)
Mr. F. G. Nwilene	Population density and dispersal pattern of cassava green mite, *Mononychellus tanajoa*, with special reference to the potential of the predatory mite, *Iphiseius degenerans*, as a biological control agent
Mr. A. El Badawi	Inheritance and combining ability of resistance to sorghum shootfly, *Atherigona soccata*, and spotted stem borer, *Chilo partellus*, in sorghum
Mr. A. N. Duale	Biology of *Pediobius furvus* and its biological potential against cereal stem borers

Mr. E. A. R. Ndhine	Studies on bionomics and behaviour of *Tetrastichus sesamiae* and its potential in biological control of legume pod borer, *Maruca testulalis*
Mr. B. E. M. A. Uronu	The effect of plant resistance and cultural practices on population densities of banana weevil *Cosmopolites sordidus* (Germ) and on banana yield
Mr. A. A. S. Mbwana	Investigation of the host range, survival and control of *Pratylenchus goodeyi* (Sher and Allan) on banana

Sensory Physiology

1988 Class

Mr. C. F. Mugoya	The feeding behaviour of *Maruca testulalis* larvae on cowpea (*Vigna unguiculata*)

1989 Class

Mrs. D. D. S. Bawo	The role of sensory receptors in mating and oviposition behaviour of *Maruca testulalis* (Geyer)

Chemistry and Biochemistry

1985 Class

Mr. B. Torto	Allelochemicals from *Sorghum bicolor* that stimulate feeding by the larvae of the stem borer *Chilo partellus*

Subsequent Careers of ARPPIS Graduates

Scholar	Date degree awarded	Present position
1983 Class		
Mr. R. K. Bagine	January 1988	Head, Department of Entomology National Museums of Kenya
Miss W. S. Forawi	April 1987	Lecturer, Omdurman University, Sudan
Mr. S. Kyamanywa	December 1988	Lecturer, Makerere University
Mr. A. A. Latif	April 1986	Scientist, FAO Project, Zimbabwe
Mr. B. C. Njau	July 1987	Postdoctoral Fellow, ILCA; returning to TALIRO, Tanzania
Mr. J. H. P. Nyeko	March 1987	Research Officer, Tsetse Control Department, Ministry of Animal Industry and Fisheries, Uganda
Mr. S. H. Okech	March 1987	Scientist, PESTNET/ICIPE Zambia
Mr. J. B. Okeyo-Owuor	February 1988	Scientist, PESTNET/ICIPE Somalia
1984 Class		
Miss D. A. Adabie	December 1989	Entomologist, Ghana Atomic Energy Commission
Mr. W. J. Bahana	(thesis submitted)	Research Scientist, International Red Locust Control Organization for Central and Southern Africa, Zambia
Mrs. U. M. Elneima	June 1989	Entomologist, Ministry of Livestock, Sudan
Mr. L. M. Kantiki	October 1987	Lecturer, University of Malawi
Mr. C. B. Maranga	June 1989	Lecturer, Kenyatta University
Mr. J. H. Nderitu	April 1990	Entomologist, Ministry of Agriculture, Kenya

Scholar	Date degree awarded	Present position
Mr. M. W.Ogenga-Latigo	March 1990	Lecturer, Makerere University
Mr. J. F. Omollo	(thesis submitted)	Lecturer, Kenyatta University
1985 Class		
Mr. I. G. Aniedu	January 1988	Lecturer, Anambra State University of Technology
Mr. M. Basimike	January 1988	Postdoctoral Fellow, ICIPE, Kenya
Mr. C. A. Kyorku	June 1990	Lecturer, University of Ghana
Mrs. R. C. Sang	—	Research Officer, Virus Research Centre, Kenya
Mr. G. Tikubet	—	Scientist, PESTNET/ICIPE Ethiopia
Mr. B. Torto	January 1989	Lecturer, Egerton University, Kenya
Mr. B. E. Wishitemi	December 1989	Lecturer, Kenyatta University
1986 Class		
Mr. M. Gethi	(thesis submitted)	Research Officer, Ministry of Agriculture, Kenya
Mr. E. B. Karamura	(thesis submitted)	Research Officer, Ministry of Agriculture, Uganda
Mr. M. wa Macharia	October 1990	Research Officer, Ministry of Agriculture, Kenya
Miss E. M. Minja	October 1990	Scientific Officer, Ministry of Agriculture, Tanzania
Mr. P. K. Muange	—	Research Officer, Division of Vector Borne Diseases, Kenya
Mrs. F. M. Ndonga	—	Research Officer, Ministry of Agriculture, Kenya

Scholar	Date degree awarded	Present position
Mr. M. A. Njau	October 1990	Tutorial Assistant, University of Dar-es-Salaam, Tanzania
1987 Class		
Mr. J. O. Davies-Cole	(thesis submitted)	—
Mr. H. H. Mahamat	(thesis submitted)	Postdoctoral Fellow (6 months) Department of Zoology, University of Washington, Seattle, USA
Mr. S. K. Mbogo	—	Vet. Research Officer, Kenya Agricultural Research Institute, Veterinary Research Division, Muguga, Kenya
Mr. T. N. Murega	May 1990	—
Mr. M. I. Mwangelwa	(thesis submitted)	Scientific Officer, Tropical Diseases Research Centre, Zambia
Mrs. E. N. Mwangi	(thesis submitted)	—
Mrs. V. C. Nyambati	(final preparation)	—
Mr. J. Ogwang	June 1990	Scientific Officer, Ministry of Agriculture, Uganda
Mr. H. Oranga	(final preparation)	Biostatistician, African Medical and Research Foundation (AMREF), Nairobi, Kenya

Publications from ARPPIS Studies

Aniedu I., Mutinga M. J. and Mutero C. M. (1989) Age composition and survival rate of *Anopheles gambiae* Giles complex (Dipt., Culicidae) in Baringo District, Kenya. *J. Appl. Entomol.* 107, 387–394.

Basimike M. and Mutinga M. J. (1990) Temperature and moisture content of soils of termite mounds and animal burrows in relation to relative abundance of adult phlebotomine sandflies (Diptera: Psychodidae) in Marigat semi-arid area. *Environ. Entomol.* 19, 486–489.

Basimike M., Mutinga M. J. and Mutero C. M. (1989) Vertical distribution of phlebotomine sandflies in two habitats in Marigat leishmaniases endemic focus, Baringo District, Kenya. *Insect Sci. Applic.* 10, 645–650.

Dransfield R. D., Brightwell R., Kiilu J. R., Chaudhury M. F. B. and Adabie D. A. (1989) Size and mortality rates of *Glossina pallidipes* in semi-arid zone of southwestern Kenya. *Med.Vet. Entomol.* 3, 83–95.

Latif A. A., Dhadialla T. S. and Newson R. M. (1988) Abnormal development of *Amblyomma variegatum* (Acarina: Ixodidae). *J. Med. Entomol.* 25, 142–143.

Latif A. A., Newson R. M. and Dhadialla T. S. (1988) Feeding performance of *Amblyomma variegatum* (Acarina: Ixodidae) fed repeatedly on rabbits. *Exp. Appl. Acarol.* 5, 88–92.

Kantiki L. M. and Ampofo J. K. O. (1989) Larval establishment and feeding behaviour of *Eldana saccharina* Walker (Lepidoptera: Pyralidae) on maize and sorghum plants. *Insect Sci. Applic.* 10, 577–582.

Kyamanywa S. and Ampofo J. K. O. (1988) Effect of cowpea/maize mixed cropping on the incident light at the cowpea canopy and flower thrips (Thysanoptera: Thripidae) population density. *Crop Prot.* 7, 186–189.

Murega T. N. (1989) Cross-breeding studies on the cassava green spider mite *Mononychellus* spp. (Acari: Tetranychidae) in East Africa. *Exp. Appl. Acarol.* 6, 85–90.

Mutinga M. J., Basimike M., Kamau C. C. and Mutero C. M. (1990) Epidemiology of leishmaniasis in Kenya. Natural host preference of wild caught phlebotomine sandflies in Baringo District, Kenya. *E. Afr. Med. J.* 67, 319–327.

Njau B. C. (1989) Resistance to *Rhipicephalus evertsi evertsi* in immono-suppressed rabbits. *Vet. Res. Commun.* 13, 93–102.

Njau B. C. and Nyindo M. (1987) Detection of immune responses in rabbits infested with *Rhipicephalus appendiculatus* and *Rhipicephalus evertsi evertsi. Res. Vet. Sci.* 43, 217–221.

Njau B. C. and Nyindo M. (1987) Humoral antibody responses of rabbits to *Rhipicephalus appendiculatus* infestation. *Res. Vet. Sci.* 43, 271–272.

Njau B. C., Nyindo M. and Mutani A. (1986) Immunological responses and the role of the paralyzing toxin in rabbits infested with *Rhipicephalus evertsi evertsi. Amer. J. Trop. Med. Hyg.* 35, 1248–1255.

Njau B. C., Nyindo M. and Mutani A. (1988) Acquired resistance in rabbits to immature stages of *Rhipicephalus evertsi evertsi. Vet. Res. Commun.* 12, 363–373.

Nyeko J. H. P., Golder T. K. and Otieno L. H. (1988) Selection for drug resistance in *Trypanosoma congolense* during cyclic transmission through *Glossina morsitans morsitans* and drug treated rabbits. *Acta Tropica* 45, 21–26.

Nyeko J. H. P., Golder T. K. and Otieno L. H. (1989) *Trypanosoma congolense.* Drug resistance during cyclical transmission in tsetse flies and syringe passages in mice. *Exp. Parasitol.* 69, 375–362.

Oloo G. W., Ogol C. K. P. and Kambona K. O. (1987) Biotaxonomy of cassava green spider mites, *Mononychellus* spp. (Tetranychidae): 'Life type' as a possible biological criterion for their identification. *Insect Sci. Applic.* 8, 995–1000.

ARPPIS Donors

1. **ARPPIS secretariat and infrastructure**

   Arab Bank of Economic Development in Africa (BADEA)

   Australian Development Assistance Bureau (ADAB)

   Overseas Development Administration (ODA), UK

   United Nations Educational, Scientific and Cultural Organization (UNESCO)

2. **Student fellowships**

   Direct Aid to Educational Establishments in Developing Countries (DSO), The Netherlands

   European Economic Community (EEC)

   Ford Foundation

   German Academic Exchange Service (DAAD)

   International Fund for Agricultural Development (IFAD)

   International Livestock Centre for Africa (ILCA)

   Pew Charitable Trusts (USA)

   Scientific Technical and Research Commission of the Organization of African Unity (OAU/STRC).

   United States Agency for International Development (USAID)

N.B. This list contains both past and present donors.

ARPPIS Fellowship Costs

Breakdown of costs incurred in a three-year fellowship for one Ph.D. Student

(A) Direct student support

		US Dollars
(i)	Student travel: home–Nairobi–return	700
(ii)	University registration and fees	1,200
(iii)	Student stipend	15,000
(iv)	Medical insurance	1,200
(v)	Approved student accommodation at Duduville International Guest Centre and Mbita Point Field Station during coursework and research	2,000
(vi)	Visits to ICIPE by university supervisor, and to university by student	2,000
(vii)	Student reference materials and book allowance	1,500
(viii)	Proportion of costs of teaching semester	1,200
(ix)	Student research support	6,500
(x)	Student services: transport, computers, etc.	1,000
(xi)	Preparation of proposals, reports and thesis	700
		33,000
(B)	**Proportion of costs, Academic Board meetings**	2,000
(C)	**ARPPIS secretariat, personnel and running costs**	7,000
		42,000
(D)	**ICIPE institutional support**	18,000
	Total for three years	60,000

Equipment Belonging to the Programme

Microscopes

1. Leitz Xialux 22EB including, phase contrast optics, tracing device, graticules and stage micrometer (two)
2. Leitz Laborlux K (one)
3. Wild M5A stereomicroscopes (six), including drawing tubes (two)
4. Wild M3B stereomicroscope (four), including drawing tube (one)
5. Wild M3Z stereomicroscope with dissecting set (one)

Teaching Equipment

1. Casio fx-35A and fx-350 scientific calculators (twenty)
2. Dissecting equipment sets (twenty)
3. Insect nets (four), sweep nets (four)
4. Insect setting boards and pins
5. General laboratory glassware and equipment

Visual Aids Equipment and Materials

1. Weyel overhead projector (one)
2. Minolta X 300 SLR camera, including Vivitor 28–200 mm lens and Vivitor 283 flashgun (one)
3. Zenith EM SLR camera (one)
4. *Principles of Entomology*: 1102 slides and two written manuals, Entomological Society of America

Documentation

Wang and IBM professional computers and printers (four)

Transport

Suzuki Jeep (one).

Teaching Library

There is a small library of textbooks for use by ARPPIS Students, in addition to their having full access to the ICIPE libraries at Duduville Headquarters and Mbita Point Field Station. Multiple copies are held of 15 titles that are used in course work.

The areas of insect science covered include Behaviour (6), Ecology (23), Functional Morphology (6), General (10), Immunology (5), Parasites (6), Pathology and Biological Control (12), Pest Management (9), Physiology (8) and Taxonomy (8).

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