

ANNUAL REPORT OF THE DEPARTMENT OF VETERINARY PATHOLOGY MICROBIOLOGY AND PARASITOLOGY UNIVERSITY OF NAIROBI FOR THE ACADEMIC YEAR 2013/2014



Chairman of the Department, Prof. P.K. Gathumbi BVM UoN, MSc (SLU- Sweden), PhD (UoN, FRVCS SLU Sweden(vet Pathology)

DEPARTMENT OF VETERINARY PATHOLOGY, MICROBIOLOGY AND PARASITOLOGY

Department of Veterinary Pathology, Microbiology and Parasitology was among the first departments that started with set-up of Faculty of Veterinary Sciences of the University of East Africa, Makerere in 1962, which later evolved to Faculty of Veterinary Medicine in 1970, when University of Nairobi was established by an act of parliament.

The department is located at upper Kabete campus on Loresho Ridge Road, off Kapenguria Road, approximately 2 kilometers from the main Nairobi-Kikuyu-Limuru Highway. It is approximately 15 kilometers North-West of Nairobi City center. It comprises of the following sections: Pathology (gross-pathology, histopathology and clinical pathology), Microbiology (bacteriology, mycology, virology and immunology) and Parasitology (helminthology, entomology and protozoology). It carries out teaching, research and the following other services: diagnostic pathology, diagnostic microbiology, diagnostic parasitology, poultry clinic, and mycotoxin analysis.

Specifically, the department is involved in:-

- 1) teaching of both undergraduate (Bachelor of Veterinary Medicine, BSc. in Biomedical Technology and BSc. in Wildlife Management and Conservation) and postgraduate (MSc and PhD) students in the following disciplines: - Pathology, Clinical pathology, Microbiology, Immunology, Parasitology and Diagnostic pathology, and Fish Science.
- 2) servicing other departments through teaching some of their courses. These include departments within the Faculty of Veterinary Medicine (Animal Production, Public Health, and Clinical Studies); Faculty of Human Medicine (Biochemistry) and Faculty of Agriculture [Department of Agricultural Economics and Department of Land Resource Management of Agricultural Technology (LARMAT).
- 3) carrying out problem-oriented research, which is geared towards improving animal health and production (domestic and wild, including poultry, fish and rabbits), human health, poverty alleviation and ensuring environmental sustainability; respective findings being disseminated to the general public via publications, workshops, seminars, conferences, farm visits and field days

- 4) offering demand-driven diagnostic services in diseases of both domestic and wild animals, including poultry, fish and rabbits; and zoonotic diseases. These diagnostic services also form part of the training component for both undergraduate and postgraduate students

NUMBER OF STAFF	NO
TITLE	
Professor	5
Associate Professor	3
Senior Lecturer	7
Lecturer	5
Tutorial Fellow	2
Chief Technologist	1
Senior Technologists	10
Secretary	1
Junior Technologists	11
Driver	1
Cleaner	1

FACILITIES

The Department has laboratory infrastructure for teaching and diagnostic services in Pathology, Microbiology and Parasitology, We host a rich collection of disease specimen in the pathology museum for demonstration to students, We also host large laboratories for practical sessions in all our disciplines, We have an Electron Microscope, an autopsy hall for large and small animals and animal experiment facilities and lecture theatres for large and small classes



Prof P.K. Gathumbi Conducting a demonstration session to students in the Pathology Museum at the Department of veterinary pathology, Microbiology and Parasitology



Postgraduate students in a demonstration on Electron Microscopy at the Department of Veterinary pathology, Microbiology and Parasitology



A practical class in session with individualized microscopy per student in the Department of Veterinary pathology Microbiology and Parasitology

COURSES OFFERED AT UNDERGRADUATE LEVEL

The Department teaches courses on pathology, microbiology and parasitology in the following programs that are offered by the faculty of veterinary medicine: Bachelor of Veterinary Medicine, BSc. in Biomedical technology and BSc. in Wildlife management and Conservation. The department also services course in degree programs offered by Faculty of agriculture and faculty of medicine

COURSES OFFERED IN POSTGRADUATE LEVEL

The Department offers the following postgraduate programs.

- 1) MSc. in Veterinary Pathology and Microbiology
- 2) MSc. in Veterinary Pathology and Diagnostics
- 3) MSc. in Clinical Pathology and Laboratory Diagnosis
- 4) MSc. in Applied Veterinary Parasitology
- 5) MSc. in Applied Microbiology
- 6) MSc. in Fish Science

POSTGRADUATE STUDENTS WHO GRADUATED WITHIN THE PERIOD

(2012- August and Dec)

NO	NAME OF STUDENT	MS c. PROGRAM	YEAR GRADUATED
1	Dr. Kamundia Patrick Waweru	MSc. in Fish Science	Sept. 2012
2	Dr. Mutua Victoria Ngo'ndu	MSc. in Applied Microbiology	Dec 2012

EXTERNAL EXAMINERS IN 2012/2013

1. Dr. Gideon Mutie Kikvi- Jomo Kenyatta University- Kenya (Microbiology- semester I)
2. Dr. Joseph M. Nginyi- Kenya Agricultural Research Institute (Parasitology- Semester I)
3. Prof. Thokozani Hove University of Zimbabwe (Parasitology- semester II)
4. Dr. Denis K. Byarugaba- Makerere University- Uganda (Microbiology- Semester II)
5. Prof. Jayro Amos Matovelo Sokoine University of Agriculture Tanzania. (Pathology- Semester II)

A. PUBLICATIONS

1. D. C. Kemboi, H. W. Chege, L. C. Bebora, N. Maingi, P. N. Nyaga, P. G. Muthia, L. W. Njagi and J. M. Githinji (2013). Seasonal Newcastle disease antibody titer dynamics in village chickens of Mbeere District, Eastern Province, Kenya. *Livestock Research for Rural Development* 25 (10),
2. **Sabuni**, Z.A., P. G. Muthia, N. Maingi, P. N. Nyaga, **L. W. Njagi**, L. C. Bebora and J. N. Michieka (2013). Skin lesions associated with ectoparasitic infestation in indigenous chickens in Eastern province of Kenya. *Research Journal of Poultry Sciences*, 6 (3): 53-58
3. **L.W. Njagi**, P. N. Nyaga, L. C. Bebora, P. G. Muthia, and U. Minga (2012). Effect of immunosuppression on Newcastle disease virus persistence in ducks with different immune status. *ISRN Veterinary Science*, doi:10.5402/2012/253809
4. F.O. Obonyo, N. Maingi, S.M. Githigia and C.J. Ng'ang'a (2013) "Farming practices and risk factors for transmission of helminths of free range pigs in Homabay District, Kenya". *Livestock Research for Rural Development*. Volume 25, Article # 36 retrieved March 21, 2013, from <http://www.irrd.org/irrd25/3/bor25036.htm>
5. Helena A. Ngowi, S. Mukaratirwa, F. Lekule, Ndichu Maingi, C. Waiswa, C. Sikasunge, S. Afonso, J. Sumbu, S. Ramiandrasoa, M. Louise and A. Willingham, "Agricultural impact of Porcine cysticercosis in Africa." A review. In *Novel aspects on Cysticercosis and Neurocysticercosis*. Edited by Humberto Foyaka Sibat. Intech, Janeza Trdine Rijeka, Croatia
6. C.W. Hungu, P.K. Gathumbi, N. Maingi and C.J. Ng'ang'a (2013) "Production characteristics and constraints of rabbit farming in Central, Nairobi and Rift-valley provinces in Kenya." *Livestock Research for Rural Development*. Volume 25, Article # 3 retrieved March 21, 2013, from <http://www.irrd.org/irrd25/1/hungu25003.htm>
7. Akweya B.A. Gitao C. G. and Okoth M.W. 2012. "The Acceptability of Camel milk and milk products from north eastern province in some urban areas of Kenya. *African Journal of Food Science*. " 6 (19) 465-473.
8. Kihu S.M. Njagi L.M. Njogu G.N., Kamande J.N. and Gitao C.G 2012 Peste des petits ruminants disease in Kenya:"Pastoralist Knowledge of the disease in goats in Samburu and Baringo counties *Res Opin. Anim. Vet. Sci.* 2(11), 544- 553"
9. Kihu S.M., Gitao C.G., Bebora L.C., Njenga M. J., Wairire G.G., Maingi N., Wahome R.G. 2012 "Participatory risk assessment of Peste des petit ruminants: Factor analysis of small ruminants' pastoral management practices in Turkana district, Kenya. *Res Opin. Anim. Vet. Sci.* 2(9), 503-510.
10. Kihu S.M, Gachohi J.M, Gitao C.G., Bebora L.C., Njenga M.J.N., Wairire G.G., Maingi N. and R.G. Wahome 2013. Analysis of small ruminants' pastoral management practices as risk factors of Peste Des Petits Ruminants(PPR) spread in Turkana District, Kenya *Research Opinions in Animal and Veterinary Sciences*, 3(9): 303-314.
11. *Wanjohi M, Gitao C.G. and Bebora L., 2013 Subclinical mastitis affecting hygienic quality of marketed camel milk from North-Eastern Province, Kenya, Microbiol. Res. Int.* 1(1): 6-15

12. J. K. Gathumbi, S. Kimani G. Kimani. FVM, University Of Nairobi, Kenya. nacada, Kenya, "Traces Of Opiates In Shisha Collected In Nairobi, Kenya".
<http://www.standardmedia.co.ke/entertainment/pulse/69/special-feature/617/shisha-could-be-deadlier-than-cigarettes>
13. Jael A. OBIERO^{1,5}, Robert KUNYERA¹, Kenneth K. WAITITU¹, **Isaac MULEI**², Idle O. FARAHI¹, Kavoo LINGE^{3,4}, Walter JAOKO⁵, Peter G. MMETHERA¹. A comparative Study of Smugel and KY Jelly Vaginal Lubricating Gels. *Journal of Reproduction & Contraception* 2013 Jun.; 24(2):76-87.
14. First reported case of fatal Tuberculosis in a wild African elephant with past human-wildlife conflict: V. Obanda, J. Poghon, M. Yongo, **I. Mulei**, M. Ngotho, K.Waititu, J.Makumi, F.Gakuya, P. Omondi, R.C. Soriguer, S.Alasaad (2013). *Epidemiol.Infect.* Page 1 of 5© CambridgeUniversity press
15. Kibebe, H.W., Gathumbi, P.K, Kigondu, C.S., Muthia, P.G and Kariuki, J.W (2013). Comparison between glycated hemoglobin and blood glucose in monitoring diabetic patients at point of care testing. *Journal of Biomedical and Pharmaceutical Research* 2: 1-4
16. Kimani, P.C., Gathumbi, P.K., Auma, J., Ngeranwa, J.J. and Masiga, D.K. (2013). In vitro activity of selected medicinal plants in Kenya on *Trypanosoma evansi* (2013). *The Kenya Veterinarian* 37:8-16
17. Kimani, P.C., Gathumbi, P.K., Nlungu, K., Auma, J., Ngeranwa, J.J. and Masiga, D.K. (2013). In vivo activity of selected medicinal plants in Kenya on *Trypanosoma evansi* (2013). *The Kenya Veterinarian* 37:17-25
18. Kanyari, PVN, Kagira, JM, Mhoma, JRL and Omemo P (2012). Parasitic causes of liver and heart condemnation and their economic effects in the Lake Victoria Basin: a retrospective abattoir survey in Kisumu Municipality, Kenya. *Scientia Parasitologica* 13(4): 139-143.
19. John Maina Kagira, Paul Njuki KANYARI, Ndicho Maingi, Samuel Maina Githigia, Chege Ng'ang'a and John Gachohi (2013). "Relationship between the Prevalence of Ectoparasites and Associated Risk Factors in Free-Range Pigs in Kenya." *ISRN Veterinary Science*, Vol 2013(2013), Article ID650890.
20. Mhoma, JRM, Kanyari, PVN and Kagira, JM(2012). "The prevalence of gastro-intestinal parasites in goats at urban and peri- urban areas of Mwanza City, Tanzania. *Scientia Parasitologica* 12:203- 208

CONFERENCES AND SEMINARS

1. The Department of Veterinary Pathology, Microbiology and Parasitology hosted a seminar on (i) "Determining the prevalence of subclinical mastitis and antibiotic sensitivity of the isolates in dairy goats in Mount Kenya region" By Mbindyo C.M. (ii) "Histopathological study of cutaneous tumours of horses at the Department of Veterinary Pathology, Microbiology and Parasitology, University of Nairobi." By Shah Dhaval

N. (iii) "Clinico- pathological, parasitological and microbiological studies of domestic rabbit diseases in target areas in Kenya." By Okumu Paul O. on 20TH November, 2012

2) The Department of Veterinary Pathology, Microbiology and Parasitology hosted a Workshop and training on forensic science and welfare of birds of prey and the interface with poultry and other industries, on 3rd July 2013:



Birds of Prey workshop participants at the Department of Veterinary Pathology, Microbiology and Parasitology on July 3, 2013

3). In December 2013, a stakeholder's workshop on enhancing village chicken productivity through parasite management for effective Newcastle disease vaccination in was held by Prof. Bebor's research team in Mbeere district, Embu County.

4) The Department of Veterinary Pathology, Microbiology and Parasitology hosted a seminar on "*Characterization and evaluation of subunit vaccines against contagious bovine pleuropneumonia*" for Dr. Nkando, I.G.

5) 36. Prof. P.K. Gathumbi and Dr. I.R. Mulei held a meeting with stakeholders at Marsabit to discuss proposal development on diseases that limit market access of livestock on April 20th, 2013.

6) Prof. P.K. Gathumbi, attended The Kenya Veterinary Annual Scientific Conference at the White sands Hotel, Mombasa on "One Health approach in veterinary training and practice" and presented a paper on "*Ocular neoplastic lesions of the horse in Kenya from specimens received between 1967 and 2013*" on 24th to 26th April 2013

7) Prof. P.Kanyari organized a Training Workshop for MSc Students in Veterinary Epidemiology and Public Health by Distant learning in July 2013.

8) The Department of Veterinary Pathology, Microbiology and Parasitology in collaboration with Prof. Corrie Brown of University of Georgia USA, organized a regional Veterinary Pathology training workshop sponsored by FAO on April 23-27, 2012



Participants of the FAO sponsored workshop held at the Department of Veterinary Pathology Microbiology and Parasitology on April 23-27, 2014

PROMOTIONS

- 1) N. Maingi was promoted to the position of Professor of Veterinary Parasitology on April 29, 2013
- 2) L.C. Bebora was promoted to the position of Professor of Microbiology and Immunology on April 29, 2013
- 3) P.G. Muthia was promoted to the position of Associate Professor on July 2012
- 4) P. Wahome was promoted to the position of Junior Technologist grade IV on May 17, 2012
- 5) S. Indeché was promoted to the position of Junior Technologist grade IV on May 17, 2012

SABBATICAL LEAVE

- 1) Prof P.G. Muthia was at the University of Ghana from August 2012 to June 2013 to teach Veterinary Pathology

AWARDS

- 1) Prof. P.K Gathumbi was awarded the Veterinary Academia award of the Kenya Veterinary Association in April 2013



Prof. P.K. Gathumbi displays the Kenya Veterinary Associations Academia award 2013

OUTREACH

Field visit in 2012

1)Dr. C.G. Gitao, visited Nyeri and Embu to discuss with project partners, stakeholders and dairy farmers, Several issues were discussed and awards were given to farmers.



(One of the key dairy goat farmers in Dr Gitao's project receives his awards. In the background are the goat sheds)

2)Prof. P.K. Gathumbi was invited to preside over 2013 prize giving ceremony on 24/5/2013 at Mukangu Secondary School, P.O. Box 71, Karatina, and was awarded a certificate of appreciation in recognition of valuable service as BOG member.

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3)The Department of Veterinary Pathology, Microbiology and Parasitology hosted and trained students from Kabete Technical Training Institute from June 24th to June 25th 2013.

4)The Department of Veterinary Pathology, Microbiology and Parasitology hosted and trained students from Kabete Technical Training Institute from June 25th to June 25th 2013

5)The Department of Veterinary Pathology, Microbiology and Parasitology hosted and trained students from Thika Technical Training Institute on 27th June, 2013

D. OTHERS

- 1 Prof. P.G. Muthia, was appointed as External Examiner at the Makerere University in the College of Veterinary Medicine, Animal Resources and Biochemistry, Department of Pathology
- 2 Prof. P.G. Muthia, was appointed as External Examiner at Sokoine University of Agriculture in Tanzania from the dates July 18th to 22nd of July 2012.
- 3 Dr. S.M. Githigia, appointed to the Taskforce on National Pig Development Strategy(NPDS) by the Ministry of Livestock Development, Kenya.
- 4 Dr. Okumu Paul Onyango, nominated by the Department of Veterinary Pathology, Microbiology and Parasitology to attend a training at ILRI on Laboratory Animal Training in September 2012.
- 5 Prof. P.W.N. Kanyari, appointed as Acting Principal, Embu University College effective from July 16th, 2012.
- 6 Prof P.K. Gathumbi was appointed as an external examiner for Mr. Ngeny Kipngetch Chris's MSc. thesis by Kenyatta University in 2013
- 7 Dr. C.G. Gitao, assisted Marloes Philippo from SNV Netherlands "*Development Organization to visit the Dean and collect information on out dairy training programmes. She was very happy and willing to create a viable network with our college21-11/2012*".
- 8 Dr. C.G. Gitao, organized a visit by students from Free University of Berlin to the Faculty of Veterinary medicine in 2013 through funding by DAAD and support from VSF-Germany



Students from the Faculty of Veterinary Medicine UON and Free University of Berlin interact during the Faculty Visit. *The German students play an interactive game with Kenyan students on how ASAL pastoralists cope with decision making*

- 9 Prof. P.G. Muthia, travelled to the University of Ghana to teach courses in Veterinary Pathology during his sabbatical leave and all expenses were paid by University of Ghana.
- 10 Prof. P.N. Nyaga, examined a Master of Science thesis for Joseph Maro Gendwere of Sokoine University of Agriculture entitled: "*Spatial and temporal distribution of foot and mouth disease virus in the lake zone of Tanzania*"
- 11 Prof. P.N. Nyaga, examined a PhD thesis from Turin University (Isis) Victoriano Llopis) on USUTU virus prevalence in Kenya.
- 12 Prof. L.C. Bebora, was appointed as one of the members in the evaluation panel during the evaluation and public presentation of Doctor of Science by Prof. Geoffrey Mboriso Ole Maloiy on Friday, June 7, 2013 at the Main Campus.

- 13 Prof. P.K. Gathumbi was invited to be the Master of ceremony at the CAVS tree planting day on 19th April, 2013.
- 14 Prof. P.N. Nyaga was appointed as External Examiner at the Department of Microbiology, School of Bio-security, Biotechnical and Laboratory Sciences, Makerere University for the month May/June 2013.
- 15 Prof. P.N. Nyaga, was offered a temporary appointment as VISITING SCHOLAR at the School of Veterinary Medicine, College of Agriculture and Consumer Sciences, University of Ghana during the Academic year 2013/2014.
- 16 Dr. S.M. Githigia, attended a pig feeding trial review meeting on June 22nd 2012 in JMB Motel, Kerugoya.
- 17 Dr. S.M. Githigia, attended the National Pig Development Strategy (NDPS) Task force meeting from 17th to 18th September, 2012 at PCEA Milele Hotel South C Nairobi.
- 18 Prof. P.K. Gathumbi, attended a Performance enhancement training from 28th to 29th July 2012 and was awarded a certificate.
- 19 Prof. P.N. Nyaga, facilitated workshop on Pandemic Influenza Preparedness Multi-Sectoral Planning for Government of Kenya from July 29th to August 1, 2012 at Midlands Hotel in Nakuru.
- 20 Prof. P.N. Nyaga, participated in the Pandemic Response Program “Past, Present and Future Engagement Conference from 26th August to September 1, 2012 in the Republic of Ghana.
- 21 Mary Njeru and Edlith Keya, attended a records management workshop at the Central Catering Unit – CCU, Main Campus.
- 22 Mr. Julius K. Kibe, attended a two-month short term certification program on “Molecular epidemiology of food-borne pathogens” at the Ohio State University-Eastern Africa One Health Summer Institute held from May 21 to July 27, 2012 in Ethiopia and Kenya. He was awarded a Certificate of Participation
- 23 Mr. Julius K. Kibe, attended a Leadership workshop at the Ohio State University- Eastern Africa One Health Summer Institute held from July 5 to July 7, 2012 in Arusha Tanzania. He was awarded a Certificate of Participation.
- 24 Dr. Lucy W.N. attended and participated in a regional workshop on innovative training in Dar Es Saalam, Tanzania from 16th to 20th September, 2012.
- 25 Prof. Bebora L.C and Dr. C.G. Gitao, attended and participated in the RUFORUM Biennial Conference at the Imperial Resort Beach Hotel in Entebbe, Uganda, from 23rd to 29 September, 2012.
- 26 Prof. L.C. Bebora, participated in the Nairobi ASK Show in two capacities, both as a Chairman of Joint Poultry and Pigs sub-committee of ASK Livestock subcommittee and as a Judge of various Poultry classes and was awarded a certificate of appreciation.
- 27 Prof. P.G. Muthia, attended and participated in the Nairobi International Trade Fair for the Year 2012 and was awarded a certificate of appreciation.
- 28 Prof. P.K. Gathumbi attended a National Rabbit Development Strategy Programme meeting on 20th November, 2012 at KARI Headquarters-Nairobi
- 29 Prof. P.K. Gathumbi was a trainer in PhD supervision training of University of Nairobi academic staff on 26th – 28th November, 2012 .
- 30 Prof. P.K. Gathumbi lead the Tree Planting Ceremony of the College of Agriculture and Veterinary Sciences on 2nd November, 2012
- 31 Dr. J.K. N. Kuria conducted meat hygiene in Somaliland and Portland on 16th November – 15th December, 2012.

- 32 Prof. P.K. Gathumbi taught on Pathology of Food animals to students in IGAD Sheikh Technical Veterinary School, Somaliland and also in Puntland in December 2012
- 33 P.N.Nyaga invited to facilitated the Pandemic Influenza Preparedness Multi-Sectoral Planning Table Top Simulation Exercise for the Government of Kenya 1st – 5th October, 2012
- 34 Prof. P.G. Muthia, attended a joint Norhed QZA-0443, TAN- 12/0050proposal writing meeting in Zanzibar on 28th February – 6th March 2013.”
- 35 Dr. L.W. Njagi, attended an inter-university One-Health workshop on co- teaching, curriculum development and partnerships organized by the OHCEA from 21-25 January 2013 in Nakuru County”
- 36)Prof. P.N. Nyaga, attended a One Health conference on co-teaching curriculum development partnerships, at Panari Hotel from 20th January to 25th January, 2013.
- 37 Dr. Paul Onyango Okumu, attended a training on Scientific communication and publishing at the University of Nairobi and was awarded with a certificate, on February 18th to 22nd, 2013.
- 38 Dr. Paul Onyango Okumu, attended a training on GIS and spatial analysis with a focus on raster analysis at the University of Nairobi, center for Sustainable Dryland Ecosystem and societies and was awarded with a certificate, on March 18th to 22nd 2013.
- 39 Dr. Paul Onyango Okumu, attended a professional course on research and grant proposal writing organized by the University of Nairobi Enterprises & Services Limited and was awarded with a certificate, in May, 2013
- 40 Dr. Paul Onyango Okumu, attended a training on working with animals and animal vectors (ticks) under containments level I, II, and III facilities at International Livestock Research Institute 9ILRI) Nairobi.
- 41 Dr. C.G. Gitao, attended a meeting for National Agricultural Research System (NARS)/KAPAP CGS Collaborative research Projects, 18th June 2013 at KARI, Thika.
- 42 Dr. C.G. Gitao, attended a stakeholders workshop to initiate development of the Camel Policy on 10th –12th June, 2013 at Lyseric Hotel, Machakos
- 43 Prof. L.C. Bebora, attended an Anthrax and Brucellosis workshop in Nakuru 26th to 28th June 2013
- 44 Prof. PWN Kanyari is the University of Nairobi representative to the National Sanitary Pytosanitary Committee.
- 45 Prof. PWN Kanyari is the Chairman, Faculty Research Grants and Liaison Committee
- 46 Prof. P.K. Gathumbi is the Chairman of the Biennial Scientific Committee. In April 2012, he led the committee in organizing the 8th Biennial Scientific Conference of the Faculty of Veterinary Medicine jointly with the 46th Kenya Veterinary Association Annual Scientific Conference at Safari Park Hotel. This event was part of the Golden Jubilee Celebration of the Faculty of Veterinary Medicine University of Nairobi.



A



B



C

A,B and C above are some of the sessions in 8th biennial scientific conference of the Faculty of Veterinary Medicine & the 46th Kenya Veterinary Association Annual Scientific Conference in progress at Safari Park Hotel in April 2012

E. RESEARCH

The department has a number of funded research programs namely:

- 1) Diagnostic and control tools and strategies for *Taenia solium* cysticercosis – Funded by ASARECA and led by Prof. Maingi, N
- 2) Developing Capacity for implementing innovative Peste des Petits Ruminant (PPR) Control Strategies – Funded by RUFORUM and led by Dr. Gitao, C.G.
- 3) Improvement of dairy productivity and marketing in sub-humid and pastoral areas of Kenya through improved dairy value Chain led by Dr. Gitao, C.G.
- 4) Enhancement of sustainable productivity of fish in Lake Victoria through control of pollutants with emphasis on endocrine disruptors and microbial pathogens Funded by VicRes and led by Prof. Muthia, P.G.
- 5) Enhancing village chicken productivity through parasite management for effective Newcastle disease vaccination in Kenya- Funded by RUFORU and led by Prof. Bebor, L.C.
- 6) Controlling Infectious Bursal Disease through development of local vaccines and establishing effective vaccination programs - Funded by National Council for Research, Science, Technology and Innovations and led by Dr. Njagi, L.C
- 7) Enhancing sustainable livestock productivity and marketing through control of Rift Valley Fever- Funded by RUFORUM and led by Prof. Nyaga, P.N
- 8) Developing Reforms for promoting ASAL communities in drought mitigation and maximization of livestock resources for improved livelihoods through strategic linkages. A KAPAP Funded Project, Principal Investigator Prof. Kanyari Paul WN.
- 9) Prof P.K. Gathumbi, and N. Maingi and two others are Co-PI in a project titled Novel Approaches towards Identification of New Anthelmintic Drugs through Bioprospecting funded through National Commission for Science and Technology and National Research Federation of South Africa The principal investigators are Prof. G.Thothi of Kenya and Dr. Kelly Chibale of South Africa
- 10) Commercial production of thermo-stable lactobacilli culture and Yoghurt from Camel milk supported by KAPAP, led by Dr. Gitao C.G.
- 11) Dr. C.G. Gitao is a Co-investigator:2012-2015 in a project on Dry land Milk Production: Building capacity for anchoring camels in the Milk Value Chains, Kenya EAAPP-OCS-01-2011-06(700,000\$); Others Prof Wahome(UoN), Tura(KARI), Lamuka(UoN)
- 12) Dr. C.G. Gitao is a Co-investigator: 2010-2013 in a project on Improvement of Dairy Productivity and Marketing In Sub-humid And Pastoral Areas of Kenya Through Improved Dairy Value Chain KAPAPCGS/FP/2011 (283,350\$) Others: Kangara (KARI) Githunguri (KARI) Wamani (MoL)
- 13) Dr. C.G. Gitao is a Co-investigator: 2013-2015 in a project on Up-scaling Of Integrated Crop and Livestock System In Sub-humid and Pastoral Areas Of Kenya (16Mill. KES) Others: Kangara (KARI), Githunguri (KARI), Wamani(MoL)
- 14) Dr. C.G. Gitao is a Principal investigator: 2009-2012 in a project on Development of capacity to control PPR in East Africa; A regional University Forum For capacity Building in Agriculture (RUFORUM- RU 2009 GRG 17 TADS) project funded by B. Gates Foundation
- 15) M.Sc. Project funding: Dr. C.G. Gitao, assisted the following to obtain funds:-
 - a)Maina Migwi: NCST/ST &I/RCD/4th call MSC 2012: *“Improvement of Peste de Petits ruminant diagnosis in Kenya through experimental infection and application of immunohistochemistry;”* 193,000 KES. From National council of Science and Technology

b) Kibore Benson: NCST/5/003/3rd cal IMSC 2011: “*Determining the prevalence of antibodies against foot and mouth disease virus in livestock using the structural and non-structural protein ELISA*” 184,890 KES. From National council of Science and Technology

16) Prof. P.K. Gathumbi is a co-investigator in a project on Strategies to Improve Rabbit Value Chain Funded by the National Commission for Research Science and Technology (P.I is Prof. Margaret Wanyoike Department of Animal production. Dr. P.O. Okumu of *The Department of Veterinary Pathology Microbiology and Parasitology* is one of the postgraduate student in the project and his project is on *Rabbit diseases*.

17) Prof. P.K. Gathumbi, L. W. Njagi, D.N. Karanja, I.R. Mulei and Michael Coughneur (2013) were awarded a grant to undertake, “A multistakeholder study to enhance the control of livestock disease that limit production and market access in dryland sites: Marsabit Kenya”. The project was funded by the Center for Sustainable Dryland, University of Nairobi and it conducted a participatory workshop with stakeholders in Marsabit county



Prof. P.K. Gathumbi and Dr. I.R. Mulei, in a meeting with stakeholders at Marsabit to discuss on diseases that limit market access of livestock on April 20th, 2013.

Dr. Gitao C.G." Improvement Of Dairy Goat Productivity And Development Of Camel Milk Fermented Products. Phase 2"

Prof. P.K. Gathumbi, progressively contributes in conservation of medicinal plants in a Botanical garden at the College of Agriculture and Veterinary Sciences



Prof. P.K. Gathumbi in Botanical garden of medicinal plants at CAVS field station established under the project on, 'evaluation and commercialization of medicinal plants' extracts for improved livelihoods: a case study of East Coast fever'. Funded by World Bank grant through Kenya Agricultural Productivity (KAPP) led by **Prof. P.K. Gathumbi**, Department of Veterinary Pathology, Microbiology and Parasitology