



UNIVERSITY OF NAIROBI
COLLEGE OF AGRICULTURE & VETERINARY SCIENCES

ANNUAL REPORT
2012/2013

OFFICE OF THE
PRINCIPAL

ACKNOWLEDGEMENT

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We also acknowledge the support of Prof. Agnes Mwang'ombe, Principal, College of Agriculture and Veterinary Sciences, the Dean, Faculty of Agriculture, the Dean, Faculty of Veterinary Medicine and all Heads of Departments in the College.

This report was prepared by the members of the college Annual Report Committee

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COLLEGE MANAGEMENT BOARD

		
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<p>Mr. George Ndiritu, College Bursar</p>	<p>Mrs Evelyn Ngunga, Acting College Registrar</p>	<p>Mr. Stanley Hahanyu, College Auditor</p>

Message from the Principal

I wish to take this opportunity to thank all the students and staff for fully identifying themselves with the College of Agriculture and Veterinary Medicine passionately referred to as simply "CAVS". It is a formidable brand you are building. This has not come easily as staff have owned the University vision of "excellence". This has greatly improved services and



relations to and between staff and students. As a result, CAVS is attracting and retaining more students than ever witnessed before leading to the current student population of 2,783 which is four times the number of students retained in the college eight years ago. This growth of student population has equally attracted foreign students not only into the graduate programs but also in the undergraduate degree programs. The traditional CAVS programs are now attracting more school leavers with very little migration to other course on admission. Instead, CAVS is getting students migrating from other programs into the Agricultural, Veterinary and Environmental based degree programs. The college is continuously scanning the learning environment leading to reviewing/recasting or even initiating new degree programs. The support mechanisms which the college management has put in place are definitely making a difference. The students feel more empowered and valued as key clients in the college and are very confident in approaching their Lecturers on Academic issues leading to very good transition/graduation rates. This situation can of course further be improved especially in the area of repeating and supplementary examinations. Indeed this empowerment has not stopped at Academic levels.

Instead, CAVS students are well socialized, professionally focused and many times when not in Academics they are also busy participating in relevant professional related activities. These activities, to name just a few, include tree planting, tending tree nurseries, participating in professional and mentorship talks, outreach activities which cover herd health in various nearby counties, mentoring the young students in high schools or simply providing services as needed. CAVS Students are very actively engaged in sports and games leading to the high performance witnessed in this academic year. Great appreciation goes to the Student games captains and CAVS Games Tutor. The college has continued to hire young brilliant staff members as Tutorial Fellows for staff development. Management appreciates the support and guidance provided by Senior Academic Members to the newly employed Academic staff.

College Management has been very clear in what is expected to be done to continue with this growth and this is articulated in the College Strategic plan which has been cascaded to all strategic administrative Units. It is indeed our responsibility to continue interrogating these documents and make them living documents so that we can achieve our vision of making CAVS the place to be when it comes to issues of Agriculture, food and nutrition and Veterinary and environmental sciences. In line with this, College Management Board took a retreat in August 2013 to formulate clear implementation plans which are time bound and results based. This was crucial as it is important as the student numbers grow there is also a high demand for resources and supporting facilities to be able to support and provide quality services. It is at this level that I take this great exception to appreciate staff who are writing winning grant proposals which bring funds into the college. Some of these funds do allow procurement of research equipment which support research and learning in addition to supporting research for graduate students. This has greatly increased the revenue and number of grants the college has attracted. The College continues to witness active participation in International, Regional and National Conferences by the same Scientists (who are also Academic Members of Staff) who have attracted Research grants. Some other staff have equally engaged in activities which are helping CAVS diversify the revenue streams. These include income generating activities which utilize the college assets and provide consultancy services. This revenue is supporting establishment of new facilities and revamping old ones to support experiential learning which contribute to the quality of our graduates. CAVS has enhanced indigenous and improved poultry production which is supported by hatcheries. The college has initiated short skills enhancement courses targeting small scale farmers to fulfill the mandate on contribution towards reduction of food and nutrition insecurity and poverty amongst the rural poor.

CAVS promotes her programs through web-based technologies and participating in exhibition and shows and this goes along with supporting learning even outside the campus. The college exhibited during the FARA Science Week in Accra Ghana, in RUFORUM Annual meeting in Rwanda and in several National events. The performance in the NITF in Nairobi was simply exemplary where CAVS was able to scoop 125 awards and 19 trophies in the various agricultural produce categories. This is purely due to staff commitment to the college core functions/mandate. I wish to reiterate that this growth still requires great commitment from staff as well as the establishment of more facilities to support quality learning.

Prof. Agnes W. Mwang'ombe, EBS., Principal, College of Agriculture and Veterinary Sciences

College of Agriculture and Veterinary Sciences

The College of Agriculture and Veterinary Sciences (CAVS) is located off Kapenguria Road, 15 Kms to the Northwest of Nairobi. As the University has evolved, so has been the college. The College was established in 1985 by the University Act and is one of the six colleges of the University of Nairobi. It comprises two faculties namely Faculty of Veterinary Medicine, Faculty of Agriculture and one institute, Wangari Maathai Institute for Peace and Environmental studies which were started in 1940, 1970 and 2009 respectively.

The Faculty of Agriculture is made up of four (4) departments namely Department of Agricultural Economics (AGECON), Department of Plant Science and Crop Protection (PS&CP), Department of Land Resource Management and Agricultural Technology (LARMAT), and Department of Food Science Nutrition and Technology (FSN&T) while the Faculty of Veterinary Medicine has five (5) departments; Department of Veterinary Anatomy and Physiology (VAP) which is located at Chiromo Campus, and the departments of Animal Production, Veterinary Pathology, Microbiology and Parasitology (VPMP), Clinical Studies (CSD) and Public Health, Pharmacology, and Toxicology (PHPT) located in Kabete Campus. In addition, the College has several teaching and research farms and field stations located in Nairobi, Central, Eastern and Coast provinces.

CAVS supports quality and diverse academic programmes which include 12 at undergraduate and several at postgraduate levels. These programs are implemented by well trained, experienced and committed staff which are attracting students not only from Kenya but also from the rest of sub Saharan Africa and beyond. These academic programs are supported by 212 Academic Staff, who are engaged in teaching, research and outreach activities in diverse areas. The academic staff are supported by technical and support staff. CAVS supports continued skills and professional capacity development of Academic staff which include training in proposal and scientific writing and PhD student supervision. This has enhanced their capacities and resulted in shortened completion time and also increased numbers of registered postgraduate students. The college continues to host professional, cultural and social activities that support production of more holistic and quality graduates.

CAVS research and outreach activities are focused around global, regional and national concerns and are leveraged on national goals as articulated in vision 2030 and regional and global guidelines namely Comprehensive African Agricultural Development Programme (CAADP) and Millennium Development Goals (MDGs). These research programs continue to grow and are clearly setting CAVS at a higher level in comparison to the other Agricultural institutions in the region. This has not come by chance but due to the academic staff commitment towards research excellence, teamwork, attitude shift and realignment towards multidisciplinary and transdisciplinary have greatly contributed to this success. CAVS has been able to engage comprehensively with other institutions leading to creation of several linkages which have been able to leverage for funds to support activities of national interest in the area of food and nutrition insecurity and poverty reduction. Cross cutting issues such as gender, climate change, environment and HIV/AIDS are fully integrated in most of the research activities.

CAVS social responsibility programs are as diverse as the various scientific disciplines represented in this college. The college continues to actively participate and win awards and trophies in the Nairobi International Trade Fair through exhibitions and competition in various entries of farm produce/products. Environment is embedded in our academic and research activities. Besides planting trees in Ngong hills forest, CAVS has established botanical garden of indigenous medicinal trees and protected three riverines through annual tree planting in Upper Kabete.

VISION, MISSION, CORE VALUES AND OBJECTIVES

VISION

To be a universal centre of excellence in training, research, outreach and consultancy services in agriculture, veterinary, biomedical, environmental and natural resource sciences in order to realize sustainable and secure livelihoods.

MISSION

To pursue and maintain a world-class leadership role in the quest for knowledge by way of quality research, capacity building, consultancy and innovative outreach in order to contribute to agricultural productivity for poverty reduction and secure livelihoods through sustainable natural resources management.

CORE VALUES

The College of Agriculture and Veterinary Sciences is committed to realizing its vision and mission. It operates within certain treasured beliefs, which have contributed to its success. The college shall:

- Uphold professionalism and ethics in all its dealings with its stakeholders.
- Be accountable and transparent in all its operations.
- Uphold integrity, honesty and quality in training and all other activities.
- Promote participatory management and effective teamwork in all its activities and operations.

- Promote and maintain linkages with industry, other institutions and alumni.
- Uphold dignity of all members of staff and students.
- Recognize and esteem ideas and innovations.
- Committed to sustainable management of natural resources and promotes biodiversity at the local level

Strategic objectives

The strategic objectives of CAVS are:

1. To manage the college efficiently
2. To produce quality and holistic graduates in agricultural, veterinary and environmental sciences
3. Advance and consolidate scientific and technological innovations in agriculture, veterinary and environmental sciences
4. To enhance the competitiveness of CAVS as a centre of excellence in agricultural, veterinary and environmental sciences

GOVERNANCE

The Principal is the academic and Administrative head of the college and chairs both the College Management Board and the College Academic Board. The College Registrar is the Secretary to the committees. At all times, the college is guided by the university of Nairobi policies and practices. College Management Board and College Academic Board members participate in decision making regarding the core functions of the college

Funding and financial management

The College has adequate funding to achieve its goals and aims and it has an adequate financial management system. Furthermore, the college has initiated several income generating activities to support its programs.

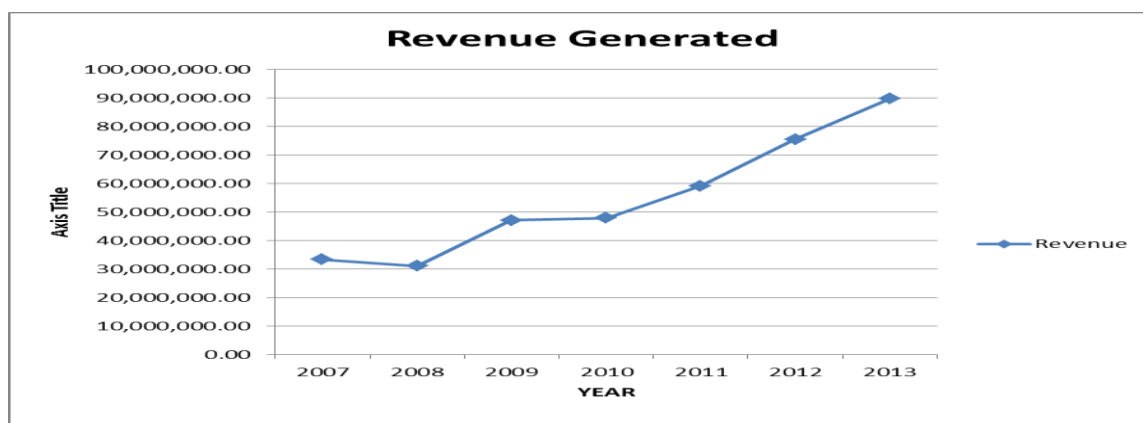
BURSAR OFFICE

Bursar's Office is a section under the principal's office that deals with management of financial resources of the College. The Section currently headed by Mr. Ndiritu has four other staff members namely: Paul, Monica, and Victor & Phane. We also have accounts assistants attached to our various outer stations who coordinate cash collection and banking.

Among others, the section is tasked with among other responsibilities, preparation of books of accounts, preparation of management report and management of fee collection and reporting in the College. The Section is also backed up in various Income Generating Units within the College by various accounts assistants who facilitates cash collection and banking on timely basis.

The College has improved in terms of fee collection over the last few years with overall collection topping up to in excess of 30 Million during the financial year 2013/2014 for Module I and in excess of Kshs 100,000,000 in the same period for Module II. The IGUs has also continued to improve during the same period with the performance for the last seven years as depicted below:-

Years	2007	2008	2009	2010	2011	2012	2013
Revenue generated	33,288,665.45	31,098,802.43	47,150,098.42	47,896,711.10	59,159,496.86	75,563,522.90	89,778,982.20



The College has continued to reinvest its resources and diversify in its IGUs in the College and also in other outer stations with such investments as Indigenous Chicken and bee keeping to ensure sustained increase in revenue generation.

Programs

Programs are developed and reviewed based on needs assessment, government policy (vision 2030) and stakeholders' input. The stakeholders' who participate include employers, alumni and current students. Curriculum design and revision are done according to the quality management system based on ISO 9001 standard in which stakeholder participation is compulsory. The programs are rigorous enough and their depth and breadth benefit the award of degrees. The major thrust of our programs is to ensure experiential learning and provide holistic training to students; all the academic staff are aware of this. Our programs are of high standard. This is reflected in the large number of our graduates who are absorbed by International Research Organizations, top international universities' graduate schools, local research organizations, the public service and non governmental organizations. Most of our programs are offered on full time, part time and open distance and electronic learning (OdeL) modes.

CAVS LIBRARY SERVICES

INTRODUCTION

This is a college library which is managed from the central administration by the Library department. The College Librarian is the head and answerable to the Director, Library and Information Service.

CAVs Library is centrally located and has three (3) floors hosting books on circulation, Reserve, Africana, journals, theses, computer laboratory, study carrels, adequate reading space, working area, offices, and other staff / users facilities.

INFORMATION RESOURCES

CAVS Library has adequate information materials for its entire community. They include:

- Print materials comprised of books, theses and journals which totals to about 60,000 titles
- Electronic materials includes electronic resources(e-books and e-journals), Digital repository that hosts our local content and includes theses, journal articles, conference proceedings, institution's history, speeches, workshop papers etc. etc. and CAVS digital content stands at 8152 items
- By the end of financial year 2013/2014 CAVS had about 24 databases relevant to courses offered in this college.
- TEEAL(The Essential Electronic Agricultural Library) –This an offline database that provides access to about 200 full text articles from different journal titles and the host server has been in CAVS Library.
- OPAC- Online public access catalogue a tool that equips the users with enough information that enable them to identify, select, find and locate information materials on the shelves as well as e-resources.

CAVS library managed to acquire approximately 544 book titles in the 2013/2014 financial year comprised of donations, gifts and purchases.



Publishing Outreach Officer Mr. George Onyango, CABI Africa presents book gift to Mr. Harun Mugo, College Librarian,CAVS

USER SERVICES

CAVS library offers the following services to the users

- Information service desk- where users get assistance or are directed to where they can get the assistance.
- Circulation desk-This is where issuing, returning and reservation of print materials takes place.
- Online Searching- this takes place in the library computer lab. Users are allowed to do their own searching to our databases and can also be assisted in case they encounter difficulties by the E-resource assistant and computer lab technician
- Training- for effective and efficient use of our e- resources the library trains the users on how to explore the online databases. In the last financial year CAVS Library was able to train three hundred and seventy two (372) users most of whom benefited during the CAVS Library Open Day/Open Access Week.
- Digital section - The Library also has established a CD based E-resources display in the Computer Lab with about 200 CDs for awareness and easy access to Information for our users.
- Study carrels –About seven (7) of them are operational and some of them are being used by postgraduates and members of staff.
- Reprographic services.



CAVS Library Staff attend to students in its Open Access Week.

OTHER LIBRARY ACTIVITIES

To properly equip the library the following activities took place:

- Ordering of books which is done in collaboration of both the academic staff and students. One hundred and fifty titles (150) were ordered in the last financial year.
- Processing of Materials is a major activity in the library that ensures information materials get to the shelves in good time . In that year about three hundred and fifty (350) titles were processed
- Shelving- This is an activity where all staff participate to ensure that the information materials are well arranged on the shelves for ease of retrieval.

TREE PLANTING

CAVS Library Staff participated in several Tree planting ceremonies which usually take place in different locations e.g Kanyariri, Kibwezi and Field station in order to make a positive Impact on the Environment as they sharpen the students minds they also beautify the environment.



Library Staff at a Tree Planting Ceremony.

STAFFING

Library services are provided by a team of qualified personnel who possess either a Masters, Bachelors, Diploma or Certificate in Library and information science and are able to effectively and efficiently deliver service to the users. The library also has support staff who assist in the maintenance of the facilities.

Website: www.uonbi.ac.ke

COLLEGE HEALTH SERVICES UNIT HOST AN ALCOHOL AND DRUG ABUSE PREVENTION SENSITISATION MEETING

The University Health Services (UHS) is mandated to carry out programmes on Alcohol and Drug Abuse prevention, HIV/AIDS and Reproductive Health. The Student body helped to publicize the event and mobilized the students for the function. The principal's office at CAVS sponsored the event. Talks were carried out from 4.30 – 6.30 P.M at the Tana Kitchen Hall. A total number of 82 participants registered for the sensitization.

The event began with prayers led by Brian after which participants were invited to give their expectations. Most of them expected information on classification of drugs of abuse, their effects, HIV prevention, what to do if one is HIV positive, how to help persons who are HIV positive. All facilitators were provided with the expectations so as to try and cover them in the presentations.

The opening remarks were given by the chair KCSO Carlton .He thanked the University Health Services staff for coming for the activity often in the college and stated that he would like more staff and students to be sensitized. He told the participants that the nature of their training makes it easy for them to streamline HIV in their work in the community. He also stated that alcohol and drug abuse had negative effect on the academic performance and work. She added that the talks should help equip them with the life skills.

During the sensitization event Dr. Gordon Ambayo gave the first talk on HIV/AIDS epidemiology; globally, nationally and Kenyan university trends on HIV/AIDS. His presentation was very extensive and emphasized on importance of knowing ones status so as to get early care and treatment. He also added that condom use played an important role in prevention of cervical cancer, unwanted pregnancies, HIV and sexual transmitted infections (STI'S) and that for the year 2012 the HIV prevalence has been higher in females at 8% and 4% for males. Male circumcision reduces by 60% the chances of HIV infection. He further said that HIV is preventable through behavior change and to follow the ABC rule (abstinence, being faithful and condom use) and encouraged participants to delay sexual debut. The presentation was also highly participative and participants asked several questions such as why the HIV prevalence in Nyanza remains high. He explained that that the cultural practices and male non-circumcision contributed to this.

Mr. Muthii talked about the importance of behaviour change saying that it can lead to improved quality of life. He also asked the participants to avoid risky behaviour such as multiple sex partners, men having sex with men, non consistent use of condoms, and cigarette smoking. Catherine Musyoka, a clinical officer and a clinical psychologist talked about the different categories of drugs and their effects as well as the signs of abuse. She mentioned some commonly abused drugs such as

bhanga, miraa etc. and explained the meaning and process of addiction. Some of the side effects of drugs were mentioned such as the effects of miraa. She explained that bhanga is sometimes put in tea or cakes and given to unsuspecting persons. Participants were cautioned about using alcohol and drugs. She explained that drugs like bhanga do not enhance memory but destroy it slowly. She also said that the chances of being arrested, getting lung cancer through nicotine intake, domestic violence, accidents and thefts are enhanced as a result of addiction. Musyoka explained the university alcohol and drug abuse policy emphasizing that no one is discriminated against by the University Health Services when seeking treatment.

Dr. Monica Onyimbo led the house to the way forward about HIV and ADA prevention with Pauline Micheni moderating the presentations; keeping the participants fully involved and warning them about peer pressure.

Dr. Sabina Wangia thanked the team and gave closing remarks by requesting the participants to practice what they had learnt; she thanked the health services team, the participants for attending the event the principal's office for the strong support of the event, the student leaders for mobilizing other students, Pauline Micheni a nurse/counsellor for coordinating the activities.

COLLEGE ICT OFFICE

About College ICT Office



The college ICT office is one of the UoN ICT Centre's colleges and campuses offices. The office was established to offer on-campus ICT support services and to enforce related UoN ICT policies and standards in the college. At the college level, the ICT office operates under the office of the Principal. The office shares the same vision and mission as the ICT Centre Directorate and supports the college to achieve its vision and mission. The office's vision and mission are;

Vision: "To become a world-class ICT function powering the university into academic excellence".

Mission: "To develop, deploy and support innovative, quality and sustainable ICT solutions and services that meet the changing learning, teaching, research and Management needs of the University".

Mr. Peter Kyalo Mulwa Chief ICT Officer in Charge

Overall Strategic Objective or Mission: To maximize student and staff productivity, enhance teaching and learning and improve quality of research through ICT

College ICT Services

The college ICT office in liaison with the office of the Director, ICT Centre and other sister ICT Centre sections offers the following on-campus ICT services among others;

- a) Computer hardware and software support Services
- b) Management Information Systems (MIS), Websites, Internet and email support services
- c) Network infrastructure support services
- d) ICT User Training Services
- e) ICT Preventive & Maintenance Services
- f) Management of the student computer laboratories
- g) ICT technical consultancy and advisory services
- h) Enforcing related University ICT policies and standards in the college

The ICT services are supported by qualified ICT staff who include Mr. Mulwa P. K., Chief ICT Officer in Charge, Mr. Wahome E. T. and Ms. Lauren Amateshe, ICT Officers. Alongside these staff, there are also qualified computer laboratory assistants responsible for manning each main computer laboratory who include, Ms. Mary Sikuku (FoA Computer Laboratory), Ms. Hellen N. Ngamini (FoVM Computer Laboratory), Ms. Mary Eghwa (Library Computer Laboratory), Ms. Christine N. Mutua (8-4-4 Computer Laboratory), and Ms. Olive O. Waitheira (8-4-4 Computer Laboratory).

College ICT Infrastructure

The college boasts of the following ICT infrastructure which helps in integration of ICT in teaching and learning and which College ICT office with support of the Principal's office, Deans' offices, WMI Director's office, Chairmen's offices and ICT Centre Director's office is committed to maintaining and improving for better ICT service delivery to both staff and students;

- a) Campus Wide Network that run on fiber back-bone that interconnects all major buildings and departments in the college
- b) LANS in offices, lecture theatres, lecture halls and laboratories
- c) Audio-visual systems in the lecture theatres, lecture halls and laboratories

- d) Internet connectivity available for free to all valid UoN students and staff
- e) Internet bandwidth at an average of 10mbps and expected to go up since the University is in the process upgrading the bandwidth
- f) Video conferencing facilities in the Principal's office and of the Dean, Faculty of Agriculture and Veterinary Sciences
- g) Digital advertisement screens located at strategic locations in the college which help in information dissemination to students and staff among other clients
- h) Thirteen (13) computer laboratories for both postgraduate and undergraduate students located in different departments and with a total of hundred and ninety seven (197) computers
- i) The computer student ration of 1:8 which is expected to be even smaller in the subsequent years since the college management is committed to buying more computers and setting up more computer laboratories
- j) Qualified ICT officers and computer laboratory assistants who provide immediate ICT support services to users in offices and in the computer laboratories
- k) Process of acquiring Wi-Fi is at advanced stage and full implementation is expected to be completed in the 2014/2015 financial year. This will create hot spots in strategic locations in the college and improve Internet access to both students and staff.

Student Computer Laboratories

S/No.	LOCATION	NO. OF COMPUTERS
1	FOA Undergraduate Student Computer Laboratory	40
2	8.4.4 Students Computer Laboratory	40
3	CMAAE Students Computer Room & Library	24
4	FOVM Student Computer Laboratory	12
5	Animal Production Student Computer Room	10
6	CSD Post-Graduate Computer Room	7
7	Veterinary Anatomy - Chiromo	18
8	PHPT Student Computer Room	8
9	FOA Postgraduate Computer Laboratory	5
10	LARMAT GIS Laboratory	9
11	College Library Student Computer Room	14
12	LARMAT Student Laboratory	1
13	A.N.P Computer Laboratory	10



Students in the Faculty of Agriculture Computer Laboratory



The LARMAT Geographical Information System Laboratory (GIS)

SPORTS FACILITIES AND EVENTS

Sports at the college are offered for both recreational and competition to enable all the Students to participate in sports. To achieve this college has the state of the art and well maintained Sports equipment and facilities. The college appreciates and values the importance of Sports and recreation; hence it has made Sports and recreation an integral part of the college activities. Below are highlight of some of the major events participated by our college teams.

College of Agriculture and Veterinary Sciences Fun Day

CAVS fun and Sports day was held on 7th December 2013. The event created an opportunity for the Students and staff to play various sports, socialize and have fun together in our excellent Sports complex. The event also created awareness on the importance of fitness among our staff and students, as a way of preventive medicine and management of most health problems. After the successful fun day the students and staff were treated to a grand luncheon of with three huge bulls slaughtered to crown to event.



College recreational and sports facilities

CAVS men football team participation in the universities and colleges football league (UCFL)



The College of Agriculture and Veterinary Sciences men football team currently the top team in the Universities and Colleges Football League (UCFL) 2014. CAVS football team has made history by being in the first position on the league table for the first time after joining the league. The teams' participation in the UCF league has provided our team and their colleague student's football fans an opportunity to spend their weekend leisure time in a positive and healthy manner. The league has also tremendously reduced alcohol consumptions and use of drugs among the students through Sports participation. Because of its intensity it has helped the students to discover their talents in football.

CAVS teams participant in the Rapid Results Initiative (RRI) Inter – Campus Sport Tournament

The rapid results initiative (RRI) inter – campus sport tournament was held at the main campus on 20th & 29th September, 2013. Our College was represented by both students and staff teams in football (men & women), Volleyball (men & women) and Basketball (men & women). Our college football men team won the football match and was awarded the first position trophy, while our football women and volleyball men teams were awarded the second position trophies. Our college teams scooped a total of three trophies and were declared the best overall college. The teams were treated with a dinner to congratulate their excellent performance.



Prof. P.F.M. Mbithi, DVC(A&F) poses with CAVS team during Constitution of Kenya 2010 Sensitization program which incorporated sports and games as a way of reaching out to UoN staff.

Prof. Mwang'ombe's Bull Match at the College Sports Complex: April 2014



The Faculty of Veterinary Medicine and Faculty of Agriculture teams in action at CAVS during the 2014 Prof. Mwang'ombe's Bull Football Match.



The Principal and Ag. Registrar having a light moment with the CAVS Students during the 2014 Prof. Mwang'ombe's Bull Football Match.



Prof. A. W. Mwang'ombe joins the Faculty of Veterinary Medicine team at the end of the football match at CAVS during the 2014 Prof. Mwang'ombe's Bull Football Match.



Prof. A. W. Mwang'ombe joins the winning Faculty of Agriculture team at the end of the football match at CAVS during the 2014 Prof. Mwang'ombe's Bull Football Match.

This year's Prof. Mwang'ombe's Bull Match was played in April 2014 at the College's sports complex. The annual event is her own initiative and innovation and it involves football teams drawn from the college two faculties; Faculty of Agriculture and Faculty of Veterinary Medicine. This year the Faculty of Agriculture team emerged the winner. The College Principal thanked the students for the team spirit and discipline they exhibited throughout the match. She encouraged the students to have the same spirit in their stay in the University of Nairobi and put more effort in their studies. The students were thereafter were treated to a dinner where they feasted on a bull provided by the principal.

College annual external sports fixture to Mombasa

The College of Veterinary & Agriculture Science **Sportsmen and women went** for their annual external Sports fixture to Mombasa on **25th April 2014**. Our teams participated in friendly matches with Mombasa Technical University and because of their consistent in training the team won the match. The annual external Sports fixture to Mombasa was an appreciation from the principal for the team's excellent performance in Sports.



CAVS teams participation in inter-campuses sports competitions

Our college teams this year have participated in the various Inter- campuses events held throughout the year and in several friendly matches and they have worn almost all the matches played.



Prof. P.F.M.Mbithi, DVC(A&F) poses with CAVS team during Constitution of Kenya 2010 Sensitization program which incorporated sports and games as a way of reaching out to UoN staff.

Kenya University Sports Association Women Annual Sports Championship

CAVS women football team and other teams participated in the Kenya University Sports Association Women Annual Sports Championship held in March 2014 at Egerton University and the teams did extremely very well.



Annual college sports corporate social responsibility activity / outreach to Mully Children's Family (MCF)

The College Sportsmen and Sportswomen visited children's home with over 2500 children. The aim of visiting these disadvantaged children home was to; inspire the children that it is possible to make it to the University of Nairobi, mentor the children and share food and gifts with them, play various Sports and fun activities and socialize with the children. The CSR activity was truly rewarding and a great experience to the students

These Sports activities done at the College have;

- ❖ Promoted the staff and student physical, mental, social, emotional fitness leading to healthy lifestyles hence increasing their productivity.
- ❖ Provided an excellent environment for our Students to improve leadership skills, Social skills, Inter personal skills and their self-confidence
- ❖ Provided an opportunity for our students to identify and develop their abilities and talents in Sports.
- ❖ Provided an opportunity for our students to spend their leisure time in a positive and healthy manner.



Thanks to Prof. Mwang'ombe principal CAVS for her great love and support of Sports at the college

CAVS PERFORMANCE IN THE NAIROBI INTERNATIONAL TRADE FAIR 2013 -

In 2013 Nairobi International trade fair, the college participated in the livestock, poultry, farm produce and rabbit sections. The college won a total of 125 prizes and 20 trophies. The Veterinary farm presented a total of 14 cows from the four breeds which were entered into various classes for competition. These cows won 14 prizes- 4 first prizes, 3 second prizes, 5 third prizes and 2 fourth prizes. The Jersey cow, cow called Naomi number 560 was the champion and had the best

udder and was awarded the ASK Medal for the Best Jersey Female breed. Another Guernsey cow which was first in her category was also awarded the Guernsey society Perpetual challenge cup. In the piggery section, the Veterinary farm entered a total of 19 pigs; 11 mature and 8 piglets. In this category, a total of 10 prizes were won, with 5 first prizes, 4 second and 1 third prizes. The pigs won 4 trophies namely; the Haig perpetual challenge cup for the best pair of baconers, Ashtead Cup for Champion female, Upland Bacon Factory cup for Best female and also the Stockman's trophy.



The Veterinary farm manager Dr. T.A. Abuom collecting a trophy from the President Uhuru Kenyatta during the opening ceremony.

In the poultry section the Veterinary farm and the Department of Animal production entered their laying hens and eggs into various classes. The Field station also entered their indigenous chicken which was the first

time such chicken were entered in the trade fair. These layers, eggs and indigenous chicken won a total of 20 prizes; 14 first prizes, 4 second prizes and 2 third prizes. In this poultry section, a total of 11 trophies were won and these were; the Biodeal Cup A for the best lightweight commercial layers, Biodeal Cup C for the best medium weight commercial layers, The Kenchic C Cup for the best Indigenous hen, Kenchic C Cup for the best Indigenous trio, Kenchic M cup for the best three matched birds, Kenchic L Cup for the best trio, Kenya Poultry Development Co. Ltd Cup perpetual challenge cup for the best six hen eggs of any colour, Pirie perpetual challenge cup for the best exhibit in egg classes, The Poultry sub-committee perpetual challenge Cup A for the best three matched lightweight commercial layer, Wardle cup for the best three matched commercial layers and Winmil perpetual challenge Cup for single commercial layer.



President Uhuru Kenyatta admiring the champion Jersey cow Naomi 560 during the livestock parade in the 2013 NITF



The CAVS NITF representative Dr. D.W. Gakuya collecting a trophy from the President Uhuru Kenyatta during the opening ceremony.

In the farm produce and the rabbit section, the college had entered various farm produce that included vegetables, grass hay, seeds, flowers, bananas, cheese, butter and ghee. The departments that participated in this section included the Field station, Plant Science and Crop Protection and Food Science

and Nutrition Technology. In this category, the college won a total of 74 prizes that included 32 first prizes, 25 second prizes and 17 third prizes. Two trophies were won in this category namely; The BASF(E.A.) perpetual challenge cup for the exhibitor gaining most points in the commercial fruits, vegetables, spices and herbs and S.K. Njuguna perpetual challenge cup for the exhibitor gaining most points in cut flowers. The department of Animal production had entered rabbits in various classes for competition. The rabbits won 7 prizes of which 6 were first and one second. The rabbit doe entered was the overall champion and won the ASK Perpetual challenge cup for the champion doe. This was the first time the college won a trophy in the rabbitry section.

The college also participated on the main University stand. In this year's trade fair, three projects were presented. These included the Seed Enterprise Management Institute(SEMI) project for bean seed production that participated in the competition class 35 for the best stand exhibiting Agronomic Practices to enhance food production and security. The project was exhibiting the newly developed bean varieties. The *Moringa oleifera* leaf meal utilization in broiler chicken feed was exhibited together with the rabbit disease project. These were placed together with other University projects in the class for the Best stand in Development Research Institution. It is my hope that the college will continue shining in the Nairobi International Trade Fair with the aim of enhancing food security, nutrition and environmental sustainability.

STUDENTS SPORTS & RECREATIONAL PROGRAMME FOR THE YEAR 2011 / 2012

The College had the following Sports & recreational programme / activities spread throughout the year 2012 / 2013 in the following Sports, Soccer, Basketball, volleyball, Hockey, Rugby, Badminton, Handball, Netball, Table tennis, Karate, Taekwondo, chess, scramble, Darts and swimming.

UNIVERSITY OF NAIROBI COLLEGE OF AGRICULTURE AND VETERINARY SCIENCES ROVER SCOUTS



Message from the Crew Leader (Omondi Peter)

“Dear scouts, - if you have seen the play “Pater Pan” you will remember how the pirate chief was always making his dying speech because he was afraid that possibly when the time came for him to die he might not have time to get it off his chest. It is much the same with me, and so, although I am not at this moment dying, I shall be doing so one of these days and I want to send you a parting word of good-bye. Remember, it is the last one you will ever hear from me so think it over. I have had a most happy life and I want each one of you to be happy in life too. I believe that God put us in this jolly world to be happy and enjoy life; happiness does not come from being rich, nor merely from being successful in your career, nor by self-indulgence. One step towards happiness is to make yourself healthy and strong while you are a boy, so that you can be useful and so can enjoy life when you are a man. Nature study will show you how full of beautiful and wonderful things God has made the world for you to enjoy. Be contented with what you have got and make the best out of it. Look at the bright side of things instead of the gloomy one. But the real way to get happiness is by giving out happiness to other people. Try and leave this world

a little better than you found it and when your turn comes to die, you can die happy in feeling that at any rate you have not wasted your time but have done your best. “Be Prepared” in this way, to live happy and to die happy- Stick to your Scout Promise always- even after you have ceased to be a boy and God help you to do it.”

WHO ARE WE.....?

Scouting is a voluntary, educational, non-political movement for young people open to all—boys and girls without distinction of origin, race gender and creed ethical/tribal background in accordance with the purpose, principles and methods as conceived by the Founder Lord Baden Powel.

The movement aims at developing the students at their formative ages so that they become responsible citizens through social, physical, intellectual and spiritual development. It plays a complementary role to school and family by responding to different needs.

Fundamental Principles

1. Duty to God
2. Duty to Others
3. Duty to Self.



CAVS Rovers working on their tree nursery project.



CAVS ROVER SCOUTS at Nairobi children's home giving donations Rover scouts service team at State house with the Kenya Scouts patron during scout's patrons day.

WANGARI MAATHAI INSTITUTE FOR PEACE AND ENVIRONMENTAL STUDIES



Prof. Stephen G. Kiama
Ag. Director Wangari Maathai Institute

On 27th July 2008 on a Sunday afternoon, Prof. Wangari Maathai, Prof Peter Gehr from University of Bern, Prof. Vertistine Mbaya and I met for lunch at Fare view hotel here in Nairobi. Prof. Gehr had requested to meet Prof Maathai on his return from Masai Mara where he and I had presented a joint paper at the international conference on Comparative Physiology and Biochemistry, Molecules to Migration, Maasai Mara, Kenya. Prof Maathai and Prof Gehr worked together in late 70's when Peter was doing part of his post doc work at the Department of Veterinary Anatomy, University of Nairobi. Wangari was then the chair of the Department. They therefore had a lot to share going back to those years. At the end of the meeting, I requested Prof. Maathai to consider doing something with the Faculty of Veterinary Medicine where I was serving as the Associate dean of the University of Nairobi at large particularly in mentoring and motivating students. Prof Maathai responded in the affirmative and requested for another meeting where she could share some of the things that she had also been thinking about concerning

engaging her almer matter, University of Nairobi. In the subsequent meeting it became clear that Wangari had a bigger vision– The Vision of the Institute. Since then, the University of Nairobi and the Green Belt movement walked with her to realize her dream. I have been privileged and humbled to be part of bringing the dream to reality.

In February 2010, the University of Nairobi appointed Prof Maathai, the Founder Distinguished Chair of the newly established Wangari Maathai Institute for Peace and Environmental Studies. Wangari was very instrumental in its establishment where she attended every meeting I convened for this purpose. She saw in it a real possibility of training transformational leaders and change agents that will bridge theory with practice in the fields of peace and environment governance and its linkages with democracy. The Institute was very close to her heart and she has shared some of her thoughts on it in her last book "*Replenishing the Earth: Spiritual values for Healing Ourselves and the World*".

During the inaugural Board Meeting held on Tuesday March 09, 2010. Prof. Maathai at the beginning of the meeting requested for a moment to sing the song "Amazing Grace", a Christian hymn written by the English poet and clergyman John Newton and published in 1779 to reflect her journey and the formation of the Institute. The Board members joined her in singing the first three (3) stanzas of the song.

Since these humble beginnings, the Institute has established formal linkages with international partners, launched teaching programs and admitted students; and is soon putting up a green campus in line with the hopes and aspiration of the Founder, the late Prof Wangari Maathai. The establishment of Institute was based on recognition by University of Nairobi and the, the late Professor Wangari Maathai, the 2004 Nobel Laureate that there is need for a pioneer institute in Africa that trains and carries out research on environmental governance and its linkages with democracy and human rights. Thus, the core purpose of WMI is to spearhead holistic multi-disciplinary research, training and community empowerment and outreach services in environmental management and its linkages with peace and democracy. The Institute currently offers two degree program the Master of Science degree in Environmental Governance and Doctor of philosophy degree in environmental governance and management.

I am very grateful to the Government of Kenya, University of Nairobi Administration, the Green Belt Movement and all International partners for the roles they are playing and continue to play to ensure the dream of this great woman, the Late Prof Wangari Maathai is realised. The contribution made by staff from various departments both locally and internationally have ensured that the institute remains true to its promise of encompassing a multidisciplinary approach to research and training. The contributions of all the staff is appreciated. I wish to offer special thanks to Dr Thenya Thuita and Prof. Raphael Wahome who have continued to serve as the coordinators of the PhD and the MSc programs respectively.

1. Programmes offered;

- (i). Doctor of Philosophy in Environmental Governance and Management
- (ii). Master of Science in Environmental Governance

(i). PROJECTS

wPOWER: Promoting Women's Critical Role in Clean Energy Solutions to Climate Change



"Photo credit: Stephen Mills"

Rachel Kastenberg , wPOWER Coordinator, Emma Kelsey, Program Officer from U.S. Department of State visits wPOWER hub at Wangari Maathai Institute for Peace and are received by Wanjira Maathai standing on the left and Prof. S. G. Kiama.

The Department of State launched the Partnership on Women's Entrepreneurship in Renewables ("wPOWER") in January 2013. wPOWER aims to empower more than 8,000 women clean energy entrepreneurs across East Africa, Nigeria and India who will deliver clean energy access to more than 3.5 million people over the next three years.

To reach this goal, the Department of State and USAID have teamed up with the MacArthur Foundation, the Global Alliance for Clean Cookstoves, CARE International, Solar Sister, Swayam Shikshan Prayog and the Wangari Maathai Institute for Peace & Environmental Studies.

Globally, more than 1.3 billion people lack access to electricity, and at least 2.7 billion people lack access to clean cookstoves and fuels. While not the primary source of climate pollution, inefficient lighting and cooking contribute to climate change and the degradation of natural resources. In off-grid communities, women are the primary users of clean technologies like solar lamps and clean cookstoves and are at the forefront of adopting the use of new technologies. wPOWER is working to unlock this largely untapped potential of women and women's groups to help fill the "last mile" gap in the supply chain to reach areas lacking energy access.

New Strategic Partners:

Women for Women International (WfWI): WfWI provides women survivors of war, civil strife and other conflicts with the tools and resources to move from crisis and poverty to stability and self-sufficiency. WfWI will work with wPOWER partners to begin offering a clean energy entrepreneurship vocational track to the women who are part of its program in Nigeria.

Green Belt Movement-Kenya (GBM): Professor Wangari Maathai's GBM pioneered a community-based tree-planting

"Working together, we have proven that sustainable development is possible; that reforestation of degraded land is possible; and that exemplary governance is possible when ordinary citizens are informed, sensitized, mobilized and involved in direct action for the environment."Wangari Maathai, 2004 Nobel Peace Laureat

approach that put women at the forefront of environmental stewardship. By partnering with some of GBM's 4,000 community groups, we will expand wPOWER networks of women clean energy entrepreneurs and introduce new livelihood opportunities to GBM's grassroots women leaders.

The Department of State launched the Partnership on Women's Entrepreneurship in Renewables ("wPOWER") in January 2013. wPOWER aims to empower more than 8,000 women clean energy entrepreneurs across East Africa, Nigeria and India who will deliver clean energy access to more than 3.5 million people over the next three years. To reach this goal, the Department of State and USAID have teamed up with the MacArthur Foundation, the Global Alliance for Clean Cookstoves, CARE International, Solar Sister, Swayam Shikshan Prayog and the Wangari Maathai Institute for Peace & Environmental Studies.

(ii). WMI Shares \$1.5 Million Research Grant Support from Danish Fellowship

Wangari Maathai Institute in collaboration with the University of Copenhagen, Denmark, Green Belt Movement and Kenya Forestry Research Institute secured a research grant of USD 1.5 Million from Danida Fellowship to carry out a project entitled "Stabilizing Kenya by Solving Forest Related Conflicts" (STAKE). The overall goal of the project is to contribute towards stability in Kenya with a specific study on the ongoing attempt to democratize the governance of the forest resources in the Mau Forest Complex. The program has provided scholarships to four (3) PhD students, one post doc and will also provide research funds to 15 Masters Students. In addition, the project is aimed at building capacity for WMI and is coordinated by Dr Thenya Thuita from University of Nairobi on behalf of WMI and Prof. Vibeke Vindelov on behalf of University of Copenhagen

(iii). African Natural Products Research and Training Network (RISE-AFFNET)

RISE- AFFNET was established by the University of Nairobi, Makerere University and Soikoine University of Agriculture. Currently the program has provided scholarships to six (6) PhD students, six (6) Master of Science Students in Natural products and two (2) post doctoral research fellows. In addition, the program has developed a Master of Science curriculum on Natural products and bio-prospecting. It is supported by Carnegie Foundation through Regional Initiative in Science and Education (RISE); <http://rise-afnnet.uonbi.ac.ke/>. Kabasa J. D., Kiama, S.G., Mdegere R.

(iv). African Development Fund to finance WMI Learning Centre

WMI received \$9 Million through the African Development Bank for the learning centre, which is part of the larger development (\$40 Million) of the WMI. This was made possible through the support of the Ministry of Higher Education Science and Technology through a project dubbed "Support to Enhancement of Quality and Relevance in Higher Education Science and Technology in Selected Universities in Kenya Project". The funding will support the WMI through construction of the first phase of a teaching, learning and experiential centre to facilitate the transfer of knowledge and skills on using natural resources sustainably from the faculty to the grassroot. The institute will also provide a community education program that will support and strengthen the capacity of professionals to serve their communities thus bridging the knowledge practice gap.

2. International linkages and Collaborations

Without key partners WMI cannot fulfill its ambitious vision. In a networked society, partnerships are increasingly important to create a critical mass, synergies and stretch scarce resources. Thus, to achieve planned results and targets and to leverage resources, WMI has forged strategic alliances with the public, private and international partners in implementing its mandate. As part of the program development process, WMI has established formal partnerships with the University of Copenhagen, The Energy Research Institute (TERI) in India, the United Nations Environment Program (UNEP), Green Belt Movement (GBM-Kenya) and the The Green Belt Movement-International. These partnerships will continue to grow as part of WMI's global outreach.

3. Publications and Conference papers

1. Kaingu C. K, J.A. Oduma, J.M. Mbaria, S.G. Kiama(2013). Medicinal plants traditionally used for the management of female reproductive health dysfunction in Tana River County, Kenya. *Tang international Journal of Genuine Traditional Medicine* Volume 3 / Issue 2, 35-44.
2. Dominic Ochwang'i, Charles Kimwele, Stephen G. Kiama, Nancy Rice (2013). Transcriptional regulation of Rat Endothelial Nitric Oxide Promoter in Pulmonary Myofibroblasts cells and its implications in Pulmonary Fibrosis. *African Journal of Pharmacology and Therapeutics* Vol. 2 No. 1 Pages 1-8, 2013.
3. Dominic O. Ochwang'i, Charles N. Kimwele, Jemimah A. Oduma, Stephen G. Kiama, Peter K. Gathumbi, James M. Mbaria (2013) Medicinal plants used in treatment and management of cancer in Kakamega County, Kenya. *Journal of Ethnopharmacology*. Volume 151, Issue 3, 12 February 2014, Pages 1040–1055.
4. Kaingu C. K, JA Oduma, JM Mbaria, S.G. Kiama(2013). Ethnobotanical survey of medicinal plants used for the management of male sexual dysfunction and infertility in Tana river county, Kenya. *The Journal of Ethnobiology and Traditional Medicine* 119: 453-463
5. Kavoi BM, Makanya AN, Plendl J, Kiama SG. (2012). Morphofunctional Adaptations of the Olfactory Mucosa in Postnatally Developing Rabbits. *Anatomical Records* 295(8):1352-63.
6. Karambu M., Kiama S.G., Wanjohi J.M., Mathiu P.M., Midiwo, J. Investigation of 4 Kenyan plants of the family Cyperaceae and specifically ethno-botanical uses of *Cyperus articulatus*. 16th ANNUAL Conference held at the

- Agricultural Research College-Institute for Tropical and Subtropical Crops in Nelspruit Mpumalanga province in S.Africa, 1st-4th of July 2013.
7. Okindo, O.R., Kiama S.G., Mbaria J., Gakuya P. Efficacy, phytochemistry and evaluate the safety of a medicinal plant (*vernonia hymenolepis*) used in kenya for oral health. The Kenya Veterinary Association held the 47th annual scientific conference between 23rd and 28th April 2013 at Whitesands Hotel, Mombasa.
 8. Gakuya D.W., Mbugua, P.N., Kiama S.G., The effect of supplementation of *Moringa oleifera* leaf meal in broiler chicken feed. 47th Kenya Veterinary Association Annual scientific conference held at Whitesands hotel, Mombasa , Kenya on 24th to 26th April 2013.
 9. Gakuya, D., Kiama S.G., et al. Zoonotic diseases in wild and domestic animal in East Africa. Inter-University workshop to nurture collaboration, curriculum review, co-teaching and partnerships. Panari Hotel, Nairobi on 21-24th January 2013
 10. Rukenya M. Z., Mbaria, JM., MBAABU PM., Kiama S.G., OZANGO R.O. In Vitro Antimicrobial, Cytotoxic Activity & Phytochemistry of *Aloe turkanensis*, an Ethnomedicine Used in Turkana , Kenya. The Uganda Veterinary Association annual scientific conference between 12th and 13th December 2013 at Kampala Imperial Royal Hotel, Uganda.
 11. Ochwangi D.C, Kimwele, C.N., Oduma, J.A., Gathumbi P.K., Mbaria J.M., Kiama S.G. Medicinal plants used in treatment and management of cancer in Kakamega County, Kenya. 3rd – 10th December 2013. 15th NAPRECA Symposium in Khartoum Sudan.
 12. Kaingu C.K., Oduma, J.A., Mbaria J., Kiama S.G. Ethnobotanical survey of medicinal plants used for the management of male sexual dysfunctionand infertility in Tana River County, Kenya. 3rd – 10th December 2013. 15th NAPRECA Symposium in Khartoum Sudan
 13. Kuria J., Kiama S.G. et al. Influence of *Aspilia Pluriseta Schweinf* on the Healing of Cutaneous Excision Wounds. 3rd – 10th December 2013. 15th NAPRECA Symposium in Khartoum Sudan
 14. Nasimolo J., Kiama S.G. et al. *Erythrina abyssinica* extracts prevent neuroinflammation, Cell Biology/Regenerative Medicine Workshop. 8th Young Scientists workshop on Cell Biology and Regenerative Medicine, from 11th-13th November 2013, by the African Academy of Sciences, Nairobi, Kenya.
 15. Kiama S.G.attended annual meeting of the Regional Initiative in Science and Education (RISE) organised in cooperation with the University of the Witwatersand held at the Aloe Ridge Hotel and Game Reserve Johannesburg South Africa on 25-26 October 2013.
 16. Kaingu K.C., Kiama S.G. et al. Antifertility properties of *Croton menyharthii* and *Uvariadendron kirkii* ; concoction traditionally used as a contraceptive in Tana River, Kenya. 25th -26th October 2013. Aloe Ridge Hotel and Game reserve, Johannesburg South Africa
 17. Nasimolo J., Kiama S.G., Gathumbi P.K., Ndegwa, M., Kagira J. *Erythrina abyssinica*ameliorates neuroinflammation in chronic trypanosomiasis mouse model. 1st OHCEA One Health Conference, at Hilton Hotel, in Addis Ababa, Ethiopia, from 23rd - 26th September 2013.
 18. Onzago R. O., Kiama S.G et al. Determination of efficacy & Safety of a medicinal plant *Vernonia hymenolepis*. The Mount Kenya University Annual national scientific conference .28th -30th August 2013.
 19. Njoki C. N., Kiama S.G. et al. Antihyperglycemic activity of the aqueous extract of *Zanthoxylum chalybeum* Stem Bark. The Mount Kenya University Annual national scientific conference .28th -30th August 2013
 20. Kiama S. G. (2012). The Passion and Vision of Prof. Wangari Maathai: Her work with Communities to protect soils and lessons learnt from the Green belt Movement. Presented in the First Global Soil Week held at the Institute for Advanced Sustainability Studies (IASS) in Potsdam Berlin, November 18-22.
 21. Nguta, J.M, J.M.Mbaria, D.W.Gakuya, P.K.Gathumbi, J.D.Kabasa^d, S.G.Kiama (2012) Cytotoxicity of antimalarial plant extracts from Kenyan Biodiversity to the Brine Shrimp, *Artemia salina* L. (Artemiidae). Presented as a Session lecture (SL) In: The 4th International Conference on Drug Discovery and Therapy (4th ICDDT) 2012, at Dubai men's college, Dubai, United Arab Emirates, February 12th-15th, 2012, Dubai, UAE.
 22. Kiama S. G. (2012) Adapting to climate change and responsible stewardship of environment for sustainable development. World Youth Alliance Africa Held at KICC Kenya on 29th August 2012
 23. Nguta, J.M., J.M.Mbaria, D.W.Gakuya, P.K.Gathumbi, J.D.Kabasa, S.G.Kiama. (2012) Cytotoxicity of antimalarial plant extracts from Kenyan biodiversity to the Brine Shrimp, *Artemia salina* L. (Artemiidae). Faculty of veterinary medicine 8th biennial scientific conference and The 46th Kenya veterinary Association Annual scientific conference and the 12th world veterinary day celebrations, 25th to 27th April 2012, Safari Park, Kenya
 24. Kiama S. G. (2012) Critique of the paper entitled "Forms of Education and Formation of the Youth in Ecologically Conscious Technologies and Their role in Development and Peace Building Processes in Africa by Evaristus O. Ekweume. Hekima College. 12th HEKIMA COLLEGE SYMPOSIUM, March 6th 2012. Theme: *Ecology In Dialogue With Technology, Peace Building And Develop*
 25. Gakuya D.W., S.G. Kiama, J.M. Mbaria, P.N. Mbugua , P.K. Gathumbi, M. Mathiu (2012): The potential use of *Moringa oleifera* Lam. As poultry feed supplement in Kenya. Faculty of veterinary medicine 8th biennial scientific conference and The 46th Kenya veterinary Association Annual scientific conference and the 12th world veterinary day celebrations, 25th to 27th April 2012, Safari Park, Kenya

26. Nanyingi M. O., Kiama S. G., Thumbi S. M. and Muchemi G. M. (2012). Climate change vulnerability, adaptation and mitigation of livestock systems in Kenya. Faculty of veterinary medicine 8th biennial scientific conference and The 46th Kenya veterinary Association Annual scientific conference and the 12th world veterinary day celebrations, 25th to 27th April 2012, Safari Park, Kenya
27. Nguta, JM, JM Mbaria, DW Gakuya, PK Gathumbi, JD Kabasa and **SG. Kiama** (2012) . Toxicity of crude plant extracts and antitumor drugs in the brine shrimp bioassay. *4th International conference on Drug Discovery and Therapy: February 12th to 15th Dubai, UAE*

4. Outreach activities

- (i). **Wangari Maathai Institute partnered in Golden Climate, International Environmental Project Olympiad**



The Director Wangari Maathai Institute, Prof Kiama Gitahi receiving on behalf of WMI a plaque from Mr. Bilal Karaduman, Chairman of Light Academy Schools in recognition, appreciation and sponsoring the 3rd edition of Golden climate International Environmental Project Olympiad.

Wangari Maathai Institute was invited by the Light Academy, Nairobi to participate in a program dubbed Golden climate whose purpose is to raise environmental awareness and consciousness to young people. The event was held on 2nd and 3rd May 2013 at Light Academy Karen Campus in Nairobi. The occasion was attended by 100 schools representing 20 countries. The theme of the gathering was "Raising Golden Generation to Achieve a Golden Climate". Several awards were given to the participants. The most prestigious award was the Wangari Maathai Special Award that was presented to Turgut Ozal College, Turkmenistan and Abadan 9th Secondary Scholl, Albania by the Turkish Ambassador in Kenya, Mr H. Avni Aksoy.

Exchange Programme



WMI students attend an experiential learning Course in Nicaragua

From left, Ms. Mutune(PhD student WMI), Prof Nadarajah Sriskandarajah, Mr Telémaco Talavera Siles and Mr. Kweyu (PhD student WMI)

WMI PhD students were privileged to attend an experiential learning course in Managua, Nicaragua (25th February to 5th March, 2013). The theme of the course was "Conservation, Development and Communication in Diverse Landscapes: Theories and Methods". The course was hosted by *Universidad Nacional Agraria (UNA)* and facilitated by Professors from both UNA and the Swedish University of Agricultural Sciences

(SLU). Participants in the course included PhD students from across the globe with diverse backgrounds working on issues related to Environment and livelihoods.

Prof. Judi Wakhungu the Cabinet Secretary for Environment, Water and Natural Resources Launches the STAKE Project at WMI



The Cabinet secretary for Environment and Natural Resources visited Wangari Maathai Institute on 2nd July 2013 to launch the STAKE project. Commenting during the launch Prof Wakhungu said " Kenya is riddled with conflicts and instability, as evident in the widespread violence that occurred after the 2007 national elections . She noted that most of this violence took place in rural areas, where conflict and competing claims over natural resources appear closely entangled. The underlying drivers of conflict and violence remain contested and poorly understood. This project is expected to contribute to stability in Kenya by understanding and targeting the underlying factors that lead to conflicts over forest related resources. Prof Wakhungu indicated that she was happy that Wangari Maathai Institute has taken this issue for its first project.

This 3-year project funded by the Danish Development Agency (DANIDA) will also contribute to Kenya's long-term development by mentoring and training the next generation of talented, young academics through provision of scholarships for Masters and PhD training. It is a partnership between the Wangari Maathai Institute, the Green Belt Movement (GBM), Kenya Forest Research Institute (KEFRI) and the University of Copenhagen, Denmark. Prof. Wakhungu noted that in search for stability and prosperity, the government of Kenya in 2005 enacted a Forest Act aimed at improving natural resources management by

decentralizing responsibilities and rights of forest management to civil society bodies called Community Forestry Associations (CFA).

After the launch Prof Wakhungu led the participants in planting indigenous tree to commemorate the life of the late Prof. Wangari Maathai at the WMI site. The trees planted include: *Prunus Africana*, *Warburgia ugandensis*, *Olea europaea ssp. Cuspidate*, *Podocarpus falcatus*, *Vepris simplicifolia*, *Croton megalocarpus*, *Juniperus procera*, *Markhamia Lutea*, *Syzygium guineense*, *Olea welwitschii*, *Trichilia emetic*, *Brachylaena huillensis*, *Spathodea campanulata* and *Vitex keniensis*. Prof.



Wakhungu planted a red stinkwood (*Prunus africanas*) and a Nandi flame (*Spathodea campanulata*). The tree planting exercise was coordinated by Dr Thenya Thuita, Mr Gachathi and Prof. Karanja Njoroge. When delivering her speech, Prof Wakungu indicated that she was glad that the development of the physical infrastructure of the Institute is well on course. She noted that the first phase has received funding from the African Development Fund in collaboration with the Government of Kenya's under the "Support to Enhancement of Quality and Relevance in Higher Education, Science and Technology Project". "The government is committed to ensure that this work commences soon and I will personally follow this up" Said Prof Wakhungu

Other people who attended and spoke during the launch included: Prof. Agnes Mwangombe Principal College of

Agriculture & Veterinary Sciences, University of Nairobi, Prof. S. G. Kiama, Ag. Director Wangari Maathai Institute, Prof. Vibeke Vindelov, University of Copenhagen, Dr B N. Chikamai, Director, Kenya Forest Research Institute, Dr Njeri Gakonyo Chair of the Board, Green Belt Movement, Mahesh Pradhan Head of UNEP's Environmental Education and Training Unit and the daughter of the late Prof Wangari Maathai, Ms Wanjira Maathai.

First STAKE steering Committee meeting Held.

The 1st Steering committee meeting for the STAKE project was held on 8th October 2013 under the chairmanship of the Principal of Agriculture and Veterinary Sciences, Prof Agnes Mwang'ombe. The STAKE project Steering Committee is mandated with the Strategic project management as well as external advocacy for the project (in policy and practice) and is comprised of the following members: Distinguished Chair, Wangari Maathai Institute, Principal of the College of



Agriculture and Veterinary Sciences, Prof. A. Mwang'ombe; Director of KeFRI, Dr. B. Chikamai; Vice Dean - Faculty of Law, UC, Prof. J. Vestergaard; Project Coordinator UoN, Dr. T. Thenya; Principal Project Coordinator UC, Prof. V. Vindelov and; Director of WMI, Prof. S.G. Kiama who serves as ex officio member (secretary) to the PSC. Dr. B. Chikamai noted that that STAKE team has done a commendable job in overseeing the success of the project and urged all to keep up with the same spirit.

The day-to-day practical project management is carried out by the Project Management Committee (PMC) which is comprised of the project coordinator Dr. Thuita Thenya, supported by STRAPA

coordinator Prof. R. G. Wahome, a representative from KeFRI, Mr. Joram Kagombe and the Executive Director of the Green Belt Movement. The PMC co-ordinates closely with the University of Copenhagen partners and, in particular, the Principal Coordinator, Prof Vibeke Vindelov.

Senate Approves a New Program for Wangari Maathai Institute

In July 2013, the Senate approved a new MSc syllabus to be taught at Wangari Maathai Institute entitled "Master of Science in Environmental Governance". This program was developed by Wangari Maathai Institute in a process that involved various stakeholders. It was developed in realization that the world is characterized by skewed trade in natural resources, deforestation, geo-political struggles over oil and gas supplies, desertification and increasing environmentally related diseases among other issues. This raises important questions about how humans currently - and in future should organize the governance of natural resources and environments upon which they depend. In September 2013, the Institute admitted the first cohort of students who have now completed their first semester.



I am very fortunate to be member of WMI. The institute offers interesting and informative lectures. The sessions are very engaging, lecturers and students exchange and share information. We also have seminars where we are able to network with other people who have the common goal of sustainable development.

Grace Kemunto Ogechi, Msc Student in Environmental Governance Program



Masters program on environmental governance at The Wangari Maathai institute is comparable to no other as it enhances and equips leadership skills in environmental conservation

to an individual! Am a better person as a result of the course as it challenges me to be more alive to the biotic and abiotic environment. It is timely especially now when our world is facing so many environmental challenges!

Rosemary Gichure, Msc Student in Environmental Governance Program

Guest Lecturers share their experiential knowledge with WMI students

Several guest lectures visited the Institute within the year and give lecture to PhD and Msc class. Among these was Prof



Karanja Njoroge, Chairman of the Friends of Karura visited the Institute who gave a lecture entitled *"Participatory Forest Management: The Role of Community Forest Associations"*. He shared with the students on how Karura forest was saved by the heroic struggle of Prof Wangari Maathai and the successful partnership between Kenya Forest Service and the Friends of Karura under the premises of the Forest Act 2005 that gives communities the right to participate in forest management. WMI students were also privileged to receive a lecture from Mr. Jamleck Ndambiri', Chairman of the Kenya Forest Association who presented on the topic *"Forest Society of Kenya: Enter a New Paradigm"*. Further, The Masters class had a very productive interactive session dubbed "Chai with Peter Blaze" on World Charter,

Environmental Education and Ethics and their application in Environmental Governance by Prof. Peter Blaze Corcoran . From all three guests' lectures, the students learnt the challenges and opportunities on environmental governance from the practitioners.

EXTERNAL EXAMINERS 2012/2013

	NAME	ORIGIN
1.	Dr. Fuchaka Waswa	Kenyatta University

Faculty of Veterinary Medicine



Prof. Mulei Charles M., Dean, Faculty of Veterinary Medicine

The Faculty of Veterinary Medicine is one of the oldest Faculties in the University of Nairobi having started training in diplomas in the 1940s. It later became fully fledged Faculty offering degrees in 1962 and celebrated its 50 years (Golden Jubilee) since inception in April 2012. It has produced a large part of the alumni of over two thousand both undergraduate and postgraduate.

Currently, it has a teaching staff of 115, technical, secretarial and support staff of 140. The Faculty currently offers five (5) degree programs namely; Bachelor of Veterinary Medicine, B.Sc. in Biomedical Technology and B.Sc. in Wildlife Management & related options, B.Sc. in Leather Science & Technology and B.Sc. in

Fisheries & Aquaculture Management. In addition, it offers over 20 M.Sc. and PhD programs, 1 postgraduate certificate, 3 diplomas, and 4 certificate program.

Having undertaken to participate in achieving the vision 2030, it has joined the other stakeholders in developing the leather technology programs at diploma, B.Sc, M.Sc. and PhD levels. The above courses have been launched.

The Faculty continues to participate in outreach and community services and has regular Biennial conferences that attract local, regional and international participants. The 8th Biennial conference was held in April 2012 – plans are underway for the next (9th) Biennial conference in 2014.

ACADEMIC PROGRAMS IN THE FACULTY OF VETERINARY MEDICINE

Undergraduate Degree Programs

The Faculty conducts five undergraduate degree programs.

- Bachelor of Veterinary Medicine
- Bachelor of Science in Wildlife Management and Related options
- Bachelor of Science in Fisheries and Aquaculture Management
- Bachelor of Science in Leather Science & Technology
- Bachelor of Science in Biomedical Technology

- **CURRICULA REVIEWED WITHIN THE YEAR**

Bachelor of Veterinary Medicine
Diploma in Animal Health and Production

-

- **CURRICULUM DEVELOPED WITHIN THE YEAR**

Bachelor of Science in Biomedical Laboratory Technology

NUMBER OF STUDENTS ADMITTED TO THE FACULTY INTO EACH UNDERGRADUATE PROGRAM IN 2012/2013

FACULTY OF VETERINARY MEDICINE

1. Bachelor of Veterinary Medicine	139
2. B.Sc. in Biomedical Technology	0
3. B.Sc. in Wildlife Management	18
4. B.Sc. in Fisheries	15
5. B.Sc. in Leather	21
6. Diploma in Animal Health & Prod.	19
7. Diploma in Leather Technology	13
8. Diploma in Meat technology	36
9. Certificate in Artificial Insemination	0

TOTAL 242

NUMBER OF STUDENTS WHO GRADUATED FROM EACH PROGRAM IN 2012/2013

FACULTY OF VETERINARY MEDICINE

1. PhD	2	
2. MSc.		15
3. Bachelor of Veterinary Medicine		50
4. B.Sc. in Biomedical Technology	24	
5. B.Sc. in Wildlife Management		16
6. Dip. in Animal Health and Prod.	11	

TOTAL 118

EXTERNAL EXAMINERS 2012/2013

	NAME	DEPARTMENT	INSTITUTION
1.	Prof. Alexander Kahi	AP	Egerton University
2.	Dr. Abdi Guliye	AP	Egerton University
3.	Prof. Esther Magiri	Biochemistry	JKUAT
4.	Dr. Gideon Kikuvi	VPMP	JKUAT
5.	Dr. Dennis Byarugaba	VPMP	Makerere University
6.	Dr. Moses K. Ndiema	DVAP	Moi
7.	Dr. Jane Mburu	DVAP	Egerton
8.	Sophie Mukwhana	CSD	Biotech Forensic
9.	Dr. Francis Gakuya	CSD	KWS
10.	Godwin Njeru	PHPT	USIU
11.	Joseph Gikunju	PHPT	JKUAT
12.	Dr. Henry Kiara	PHPT	ILRI
13.	Dr. Michael Gicheru	PHPT	Kenyatta
14.	Dr. Henry Kiara	PHPT	ILRI
15.	Joseph Gikunju	PHPT	JKUAT
16.	Prof. Resto Mosha	PHPT	Sokoine
17.	Dr. Michael Gicheru	PHPT	Kenyatta University
18.	Dr. Mwinyikione Mwinjihija	PHPT	Ethiopia
19.	Dr. Joseph Rotich	PHPT	Moi
20.	Prof. Jayro Matovelo	VPMP	Sokoine
21.	Dr. Dennis Byarugaba	VPMP	Makerere University
22.	Prof. Thokozani Hove	VPMP	Zimbabwe
23.	Prof. Bittigekeko Rwegemamu	CSD	Sokoine University

24.	Evans Taracha	CSD	Karen
25.	Dr. Moses K. Ndiema	DVAP	Moi
26.	Dr. Jane Mburu	DVAP	Egerton
27.	Prof. Mkumbuka Mtambo	CSD	Sokoine
28.	Prof. Noel Kanuya	CSD	Sokoine
29.	Prof. Esther Magiri	Biochemistry	JKUAT
30.	Prof. Alexander Kahi	AP	Egerton
31.	Dr. Abdi Guliye	AP	Egerton

DEPARTMENT OF VETERINARY ANATOMY AND PHYSIOLOGY



Dr. Charles N. Kimwele
Chairman Department of
Vet Anatomy & Physiology

The Department of Veterinary Anatomy and Physiology is a Department of The Faculty of Veterinary Medicine (FVM), College of Agriculture and Veterinary Science (CAVS) located at Chiromo Campus. The Department teaches preclinical Veterinary Students Animal Physiology and Veterinary Anatomy. It also offers courses to BSc wildlife BSc Fisheries and BSc Leather students form a selection of the following courses; Vertebrate Anatomy, Ecophysiology, Ornithology, Ichthyology, Herpetology and Wildlife Behaviour. The Department also offers undergraduate service courses to the Faculty of Agriculture and College of Health Sciences (BSc. Biochemistry). Postgraduate service courses are also offered to the Department of Animal Production and the School of Biological Sciences (MSc. Biology of Conservation).

PROGRAMMES OFFERED

Postgraduate Programmes - 5

- 1) PhD (Animal Physiology)
- 2) PhD (Veterinary Anatomy)
- 3) Master of Science in Comparative Animal Physiology
- 4) Master of Science in Reproductive Biology
- 5) Master of Science in Veterinary Anatomy and Cell Biology

ENROLLED STUDENTS IN POSTGRADUATE PROGRAMMES

PhD. - 6
Masters - 3

NO. OF STAFF AND THEIR DESIGNATION

Professor - 2
Assoc. Professor - 4
Senior Lecturer - 8
Lecturer - 5
Tutorial Fellow - 6
Chief Technologist - 2
Senior Technologist - 6
Technologist - 6
Technician Trainee- 1
Carpenter - 1
Maceration - 1
Cleaner - 1
Messenger - 1
TOTAL 44

NUMBER OF GRADUANDS

Masters - 2
PhD - 2

SUMMARY REPORT OF ACTIVITIES & EVENTS

TRAININGS

1st to 4th April 2013. As part of the mentoring for other Universities, The Department offered a Service Delivery Practical Training for BSc. Animal Health (JKUAT) students.



Above: Practical training for BSc. Animal Health (JKUAT) students.

Between August and November 2013, Dr. Boniface Kavoi from Dept. of Vet. Anatomy & Physiology was a visiting scholar at the University of Ghana, School of Veterinary Medicine and Consumer Sciences. While on the academic visit, he taught Veterinary Gross Anatomy to 200 BVM students at the School. He further engaged in research by supervising post graduate students. He also engaged in Vet. Gross Anatomy curriculum development.



Above: Dr. Boniface Kavoi academic visit at the University of Ghana, School of Veterinary Medicine and Consumer Sciences

EXCHANGE PROGRAMMES

From May 28th to 21st June 2013: Prof. Seth M. Kisia visited the University of Minnesota, USA. for the "2013 Public Health Institute (Training)" at the School of Public Health, from May 28th to 21st June 2013. The visit was a RESPOND Faculty exchange programme sponsored by USAID involving Scientists from Central and East Africa (Kenya, Uganda, Tanzania, Ethiopia, Rwanda and Democratic Republic of Congo) and S. E. Asia (Thailand, Malaysia, Indonesia and Vietnam) under the 'ONE HEALTH' concept



Above: Prof. Seth M. Kisia at the University of Minnesota, USA.

COLLABORATIONS

Wildlife Molecular forensic Research Collaboration

A collaborative research effort between the UoN (Department of Veterinary Anatomy and Physiology (Lead Departmental researcher, Dr. C.N. Kimwele)), JKUAT (Prof. Erastus Gatebe, Dr. Shandrack Muya, Professor Anne Muigai, Dr. Mercy Mwaniki) and Kenya Wildlife Services (Dr. F. Gakuya). In 2012 through to 2013 one Ph.D and three MSc. students carried out laboratory analysis at the Biotechnology laboratory of the Department. The three students were Julius Kinuthia (JKUAT), David Mbugua (UoN), Ednah Kwamboka (JKUAT) and Morris Mugambi (JKUAT).



Above left to right: Dr. C.N. Kimwele, Ms. Ednah Kwamboka (JKUAT), Mr. David Mbugua (UoN), and Mr. Morris Mugambi (JKUAT)

Lake Magadi Collaborative Research

Between July and August 2013 the Magadi Collaborative Research, including members of the Department and Scientists from McMaster University Canada, Federal University Rio Grande, Brazil. University of Antwerp, Belgium South Eastern University, Kenya Wildlife Services and University of Nairobi visit For 2 Months. The Lake Magadi Collaborative Research Team comprises of Dr Rodi Ojoo (UoN), Prof. Chris Wood, Dr Ora Johannsson (McMaster University), Prof. Gudrun DeBoeck (University of Antwerp Belgium), Dr Mosiany Kisipan (UoN), Dr Kevin Brix (Federal University of Rio Grande Brazil), Dishon Muthee (UoN), Dr Michael Papa (UoN) & Prof. John Maina (University of Johannesburg, SA). The Team visited Lake Magadi to study the lake Magadi fish.



Above: Magadi Collaborative Research Team

African Natural Products Research and Training Network (RISE-AFFNET)

Natural products (NP) value chain and technology is a multi- and interdisciplinary sciences that addresses the problems and issues associated it. NPs have an immense potential to poverty eradication and sustainable livelihoods. However, the existing systems for their development as a resource and livelihood option are weak and fragmented. There are many NP related pressures facing the region, including knowledge gaps, biodiversity loss, insufficient human capacity, overexploitation, and the very real possibility of resource loss associated with climate change and population pressure. The development of African solutions to the problem of its natural industry is hindered by shortage of trained personnel, competent human capital and facilities, especially at high levels of academic and professional expertise, resulting into insufficient grass-root trickledown effect. RISE- AFFNET was established by the Makerere University (Prof. Kabasa J. D.), University of Nairobi (Prof. S. G. Kiama), and Soikoine University of Agriculture (Prof. Mdegere R.) in 2008 to bridge this gap. Currently the program has provided scholarships to five several PhD student and Masters of Science Students in Natural products and two (2) post doctoral research fellows. The project is supported by Carnege Corporation of New York through-Regional Initiative in Science.



Students provided scholarships by the rise program after a meeting with Andrea Johnson from Carnegie Cooperation

Above Left to right Ms. Sylvia Onchaga, Dr. Irene Kamanja, Dr. Stanley Wambugu, Ms. Clare Njoki, Ms. Karambu Muriithi, Ms. Andrea Johnson, Prof. Stephen Kiama, Dr. Zachary Rukenya, Dr. Joseph Nguta, Mr. Joseph Musau Squatting – Dr. Ronald Onzigo, Dr. Catherine Kaluwa, Dr. Johnson Nasimolo, Dr. James Kuria & Dr. Dominic Ochwang'i,

GRADUATION

Four of our teaching staffs were awarded various degrees:



Above: Graduands - Professor Geoffrey M. Ole Maloiy(left)

1. Prof. Professor Geoffrey M. Ole Maloiy was awarded a Doctor of Science degree
2. Dr. Albert Nyongesa graduated with a PhD in comparative physiology
3. Dr. Kimani Muturi graduated with an MSc in Vertebrate Anatomy
4. Dr. Nasimolo also graduated with an MSc in Vertebrate Anatomy

PUBLICATIONS AND CONFERENCE PAPERS

1. Michael B. Papah, Seth M. Kisia, Rodi O. Ojoo Andrew N. Makanya, Chris M. Wood, Geraldine D. Kavembe, John Maina, Ora E. Johannsson, Harold L. Bergman, Pierre Laurent, Claudine Chevalier, Adalto Bianchini, Lucas F. Bianchini, and Daniel W. Onyango (2013). Morphological evaluation of spermatogenesis in Lake Magadi tilapia (*Alcolapia grahami*): a fish living on the edge. *Tissue and Cell* 45: 371–382
2. Chris M. Wood, Michele Nawata, Jonathan M. Wilson, Pierre Laurent, Claudine Chevalier, Harold L. Bergman, Adalto Bianchini, John N. Maina, Ora E. Johannsson, Lucas F. Bianchini, Geraldine D. Kavembe, Michael B. Papah, and Rodi O. Ojoo (2013). Rh Proteins and NH₄⁺-activated Na⁺-ATPase in the Magadi Tilapia (*Alcolapia grahami*), a 100% Ureotelic Teleost Fish. *Journal of Experimental Biology* 216:2998–3007

3. Nyongesa, A.W., Oduma, J.A., Nakajima, M., Odongo, H.O., Adoyo, P.A and al'Absi, M (2013). Acute and sub-chronic effects of purified cathinone from khat (*Catha edulis*) on behavioural profiles in vervet monkeys (*Chlorocebus aethiops*). *Metabolic Brain Disease* Vol 28 Number 3. DOI 10.1007/s11011-013-9441-z.
4. Nyongesa, A.W., Oduma, J.A., Nakajima, M., Odongo, H.O., Adoyo, P.A and al'Absi, M (2013). Dose-response inhibitory effects of purified cathinone from khat (*Catha edulis*) on cortisol and prolactin release in vervet monkeys (*Chlorocebus aethiops*). *Metabolic Brain Disease* Vol 28 Number 4. DOI 10.1007/s11011-013-9445-8.
5. Makanya AN, Anagnostopoulou A, Djonov V 2013 Development and Remodeling of the Vertebrate Blood-Gas Barrier. *Biomed Research International*. Article ID 101597
6. Dimova I, Hlushchuk r, Makanya A, Styp-Rekowska B, Ceausu, A, Fluckiger S, Lang S, Semela D, Le Noble F, Charterjee, S, Djonov V. (2013) Inhibition of Notch signaling induces extensive intussusceptive neoangiogenesis by recruitment of monuclear cells. *Angiogenesis* 16: 921–937.
7. Lucia K Keter, Nicholas M Mwikwabe, Mathiu P Mbaabu, Harihara M Sudheer, Festus M Tolo, Palu Dhanani and Jennifer A Orwa (2013). Validation of Safety and Efficacy of Antitussive Herbal Formulations. *African Journal of Pharmacology and Therapeutics*, Vol 2 No (1) Page 26 – 31.
8. Dominic Ochwang'i ,*, Charles Kimwele , Stephen G. Kiama , and Nancy Rice (2013) Transcriptional regulation of Rat Endothelial Nitric Oxide Promoter in Pulmonary Myofibroblasts cells and its implications in Pulmonary Fibrosis. *African Journal of Pharmacology and Therapeutics* Vol. 2 No. 1 Pages 1-8
9. M.M. Mururu, A.W.T Muigai, C. Kimwele, E Gatebe, J. Kinuthia, M. Mwaniki, F Gakuya, E Kwamboka and D. Mbugua (2013). Cytochrome oxidase 1 gene and its application in wildlife forensics in Kenya (2013). *FIRE Journal of Science and Technology*, 3 (2013) 108-119
10. Nasimolo participated in *ICGEB* Biodownstream Technology Course in Piran, Slovenia from 15th-19th April, 2013.



11. Nyongesa presented a talkin aKhat Symposium titled: "*Nerval and homonal interplay on behavior in vervet monkeys (Chlorocebus aethiops)*" on 13th to 18th June 2013 in Morocco, during the 11th International SONA conference
12. Nasimolo presented his work on "*Erythrina abyssinica ameliorates Neuroinflammation in African Trypanosomiasis mouse model*" at the 11th International SONA Conference in Rabat Morocco, from 13th-18th June 2013.
13. Johnson Nasimolo attended the 19th International Scientific Conference on Basic and Clinical Research for improved Health on 11th-13th 2013 in Southern Sun, Mayfair Nairobi, Kenya. Dr Nasimolo presented his research entitled: "*Erythrina abyssinica ameliorates Neuroinflammation in African Trypanosomiasis mouse model*"(Oral Presentation)(Dr. Kimani, Kaluwa, and Papah)
14. Kaluwa participated in the 19th International Scientific Conference on Basic and Clinical Research for improved Health on 11th-13th 2013 in Southern Sun, Mayfair Nairobi, Kenya.
15. Papah participated in the 19th International Scientific Conference on Basic and Clinical Research for improved Health on 11th-13th 2013 in Southern Sun, Mayfair Nairobi, Kenya.
16. Kimani participated in the 19th International Scientific Conference on Basic and Clinical Research for improved Health on 11th-13th 2013 in Southern Sun, Mayfair Nairobi, Kenya.
17. Papah presented a research on "Lake Magadi ecosystem: current research trends and future perspectives" during the 1st OHCEA One Health Conference, in Hilton Hotel, Addis Ababa, Ethiopia from 22 - 26 September 2013. One Health conference , Ethiopia (Nasimolo, Papah, Kimani)
18. Kimani Muturi participated in the 1st OHCEA One Health Conference, in Hilton Hotel, Addis Ababa, Ethiopia from 22 - 26 September 2013.
19. Nasimolo Johnson presented on "*Erythrina abyssinica ameliorates Neuroinflammation and conserves proteins in African Trypanosomiasis mouse model*" in the 1st OHCEA One Health Conference, in Hilton Hotel, Addis Ababa, Ethiopia from 22 - 26 September 2013.



Right: Dr Kimani (2nd from left), Dr. Papah (1st from right) and Dr. Nasimolo (2nd from right) with other participants during the 1st OHCEA One Health conference in Addis Ababa, Ethiopia.

20. Kaluwa attended the 15th Symposium of the Natural Products Chemistry Research Network for Eastern and Central Africa (NAPRECA) from 3rd -10th December, 2013 in Khartoum Sudan.
21. Dominic Ochwangi attended the 15th Symposium of the Natural Products Chemistry Research Network for Eastern and Central Africa (NAPRECA) from 3rd -10th December, 2013 in Khartoum Sudan.

Community Outreach Activities

CAVS - KIPPRA tree planting, 23rd June 2013.

STAFF WELFARE



Above: DVAP Welfare Annual general meeting was held on 28th November 2013.

RESEARCH ACTIVITIES UNDERTAKEN IN 2013

Research areas undertaken

- Physiological and Ecological studies of the unique aquatic life in Lake Magadi, Kenya.
- Conservation genetics and forensics in Kenya
- Evaluation of traditional herbal therapy for cancer state
- Mechanism of action of purified cathinone from khat (*Catha edulis*) on behavioural and reproductive function in vervet monkeys (*Chlorocebus aethiops*).
- Investigations on Notch signaling in developmental angiogenesis.
- Mechanisms of blood-gas barrier development in an avian model.
- Spermatogenesis spermatogenesis in Lake Magadi tilapia (*Alcolapia grahami*): A fish living on the edge
- Evaluation of pain alleviating, anti-inflammatory and anti-Rheumatoid properties of selected Kenya Medicinal plants.
- Pharmacological, Toxicological and Phytochemical study of *Clerodendrum myricoides*, an important medicinal plant used in Samburu, Kenya.
- Development of a biopesticide for use against mosquitoes from selected plants in Msambweni District, Kenya.

- Indigenous knowledge and practices of the Ameru in natural resources conservation
- Animal welfare Research and Policy in Africa

Grants

- Preparation of a grant proposal for ERAfrica

INTERNATIONAL LINKS AND COLLABORATIONS

1. McMaster University, Canada
2. University of Johannesburg, South Africa
3. Great Lakes Laboratory for Fisheries and Aquatic Sciences, Canada
4. University of Antwerp, Belgium
5. Universidade Federal do Rio Grande (FURG), Brazil
6. University of Wyoming, U.S.A
7. JKUAT
8. Kenya Wildlife Services (KWS)
9. University of Minnesota through its Duluth Campus Medical School
10. Institute of Anatomy, University of Bern. This link supports joint research projects and capacity building for the Department of Veterinary Anatomy and Physiology and the Institute of Anatomy, University of Bern.
11. With Dr. Ivanka Dimova, Department of Medical Genetics, Medical University Sofia, Bulgaria
12. Tufts University and University of Minnesota on One Health.
13. World Society for the Protection of Animals

DEPARTMENT OF PUBLIC HEALTH, PHARMACOLOGY AND TOXICOLOGY



The Department of Public Health, Pharmacology and Toxicology (PHPT) is one of the five academic units in the Faculty of Veterinary Medicine, University of Nairobi. The department provides training and research in the following specialized areas: Veterinary Public Health (Food Microbiology, Food Hygiene, Food and Environmental Toxicology, Zoonoses, Meat hygiene), Pharmacology, Toxicology, Epidemiology, Livestock Economics and Business management, Biostatistics, Immunology and Microbial Biotechnology and leather Science and technology. Consultancy services are provided in the following areas: Acute toxicity testing of pesticides, Drug efficacy trials, toxicological analysis of feed samples, microbiological analysis of food, water and feeds, mycotoxin analysis, slaughterhouse design and construction, field surveys among others.

Prof. Jackson N. Ombui,

**Chairman, Department of Public Health,
Pharmacology and Toxicology**

ACADEMIC PROGRAMS OFFERED IN THE DEPARTMENT

UNDERGRADUATE PROGRAMS:

Diploma programs

1. Diploma Leather technology
2. Diploma in Veterinary Public Health and Meat Technology.

Certificate programs

1. Certificate course in Meat Hygiene and Quality Assurance

POSTGRADUATE PROGRAMS: The Department offers the following five Masters and five PhD programs.

Masters Programs

1. Master of Science in Pharmacology and Toxicology
2. Masters in Epidemiology and Economics
3. Masters in Veterinary Public Health
4. Master of Science in Natural products and Bioprospecting
5. Master of Science in Leather Science

PhD Programs

1. PhD in Pharmacology and Toxicology
2. PhD in Epidemiology and Economics
3. PhD in Veterinary Public Health

4. PhD in Natural products and Bioprospecting
5. PhD in Leather Science

POSTGRADUATE STUDENTS WHO GRADUATED IN September 2012

1. Dr. waweru kabaka (J5675600/09); Master of Veterinary Epidemiology and Economics)
2. Jason K. Gathumbi (J56/7138/07): Master of Science in Pharmacology and Toxicology) .
3. Joseph Kipkoech Bundotich (J56/76704/09; Master of Science in Pharmacology and Toxicology)
4. Okumu Ochola (J56/72044/08; Master of Science in Pharmacology and Toxicology)
5. Cameline Wanjiru Mwai (J56/72405/05; Master of Veterinary Public Health)
6. Emali Eric Eshitera (J56/71379/07; Master of Veterinary Epidemiology and Economics)
7. Joan Magero Akumu (J56/7907/03; Master of Veterinary Epidemiology and Economics)

Research Projects

Prof. James M. Mbaria: Building Research partnerships and capacity in the field of ecotoxicology in Kenya and South Africa (Grant Amount: NCST(K) Ksh: 1.5Million and NCST(SA) Ksh. 1.5 million)

Collaborators: Dr. Edward Kariuki (KWS), Francis Gakuya (KWS) , Dr. Gerald Muchemi (Phpt)

Grant Period: Start: Oct 17, 2012: End: Oct 31, 2015.

Publications and Conference Papers

1. Mirara A. And Maitho T. 2013. Monitoring rainfed data in order to estimate milk production in Mweiga location, Nyeri County, Kenya. *Livestock Research for Rural Development*, 25 (144) 1-7.
2. Joseph Mwanzia Nguta*, James Mucunu Mbaria and Winchester David Mvula. Brine shrimp toxicity and *in vitro* antimicrobial activity of *Ptilostigma thonningii* (Schum.) Milne-Redh. [Leguminosae-Caesalpinioideae] from Kenya and Malawi against some pathogens of human and veterinary importance. *Journal of Veterinary Medicine and Animal Health*, Vol. 5(9), pp. 251-256, September, 2013. DOI 10.5897/JVMAH13.0208. © 2013 Academic Journals <http://www.academicjournals.org/JVMAH>
3. J.M. Nguta, J.M. Mbaria. Brine shrimp toxicity and antimalarial activity of some plants traditionally used in treatment of malaria in Msambweni district of Kenya. *Journal of Ethnopharmacology* 148 (2013) 988-992.
4. James M. Mbaria, Charles Ochodo and Joseph Mwanzia Nguta. Forensic case of lead poisoning from a battery manufacturing company in Nakuru, Kenya. *Japanese Journal of Veterinary Research* 61 (Supplement): S64-S66, 2013.
5. M.F. Musila, S.F. Dossaji, J.M. Nguta, C.W. Lukhoba, J.M. Munyao. *In vivo* antimalarial activity, toxicity and phytochemical screening of selected antimalarial plants. *Journal of ethnopharmacology* 146 (2013) 557-561
6. Gathumbi J.K., Kanja L.W. Maitho T.E., Mbaria J.M., Nduhiu J.G., Nderitu J.G., Gitau F.K., Lucy M.W., Maloba K (Sept 2013) Assessment of Lead and Copper in Fish and Soil Sediments in Kirinyaga South District, Kenya. *Journal applied Sciences in Environmental Sanitation*, 8 (3): 145-
7. Ombui J.N attended a Joint UON/ISTVS/IGAD Workshop to discuss Diploma and BSc programs to be offered at ISTVS and modalities for Implementation at Naivasha Country Hotel, Naivasha between 8th -10th May 2013.
8. Ombui J.N attended a Joint UON/ISTVS/IGAD Workshop to finalize discussions on Diploma and BSc programs to be offered at ISTVS and modalities for Implementation at CHAK Guest House, NAirobi between 13th -15th May 2013.
9. Ombui J.N attended College Strategic Planning Workshop at The School of Monetary Studies, Nairobi, between 16-18th May, 2013.
10. Ombui J.N attended an ODEL – Orientation workshop held on 17th July 2013 at CAVS (Dept Clinical Studies Seminar Room)
11. Ombui J.N attended a training on use of E-learning portal for CAVS staff held on 14th- 15th August, 2013 at School of Computing, underground labs, Chiromo Campus.
12. Ombui J.N attended an OHCEA supported workshop to review of Bachelor of Veterinary Medicine held at Jacaranda Hotel, in Westlands, Nairobi on 4th September 2013
13. Ombui J.N attended an OHCEA supported stakeholder forum on review of Bachelor of Veterinary Medicine held at Maanzoni Hotel between 16- 20th September, 2013
14. Ogara W.O attended the 2nd International congress on Pathogens at Human-Animal Interface (ICOPHA): One health for sustainable development, Brazil 14-17th August, 2013
15. Kanja L.W attended a workshop on National Implementation Plans for Persistent Organic Pollutant - Inventory Preparation Workshop held at Izaak Walton Hotel, Embu On 1st – 4th July, 2013
16. Kanja L.W an ODEL – Orientation workshop held on 17th July 2013 at CAVS (Dept Clinical Studies Seminar Room)

17. Kanja L.W attended a training workshop on use of E-learning portal for CAVS staff held on 14th- 15thAugust, 2013 at School of Computing, underground labs, Chiromo Campus.
18. Nguta J.M attended a workshop to review Veterinary Medicine curriculum at **Maanzoni Lodge**, Machakos, during 16th to 20th September 2013.
19. Nguta J.M attended a stakeholder's workshop to review Veterinary Medicine curriculum at Jacaranda hotel in Westlands, on 4th September 2013.
20. Nguta J.M attended an International Course/International Workshop on, "Molecular Epidemiology and Applications in Foodborne, Nosocomial and Vector-borne Infectious Diseases of Global Significance" at Summerville Beach Resort, Porto de Galinhas-Pernambuco (PE), Brazil during August 11to 14th, 2013.
21. Nguta J.M attended the University of Nairobi Science Knowledge base (UONSK) E-learning workshop on TUSK software organized by One Health Central and Eastern Africa (OHCEA) during 6th to 9th August, 2013, at the Computer lab, 8-4-4 building, Upper Kabete Campus, University of Nairobi
22. Nguta J.M attended an International Course/International Workshop on, "Molecular Epidemiology and Applications in Foodborne, Nosocomial and Vector-borne Infectious Diseases of Global Significance" at Summerville Beach Resort, Porto de Galinhas-Pernambuco (PE), Brazil during August 11to 14th, 2013.
23. J.M Nguta J.M attended the University of Nairobi Science Knowledge base (UONSK) E-learning workshop on TUSK software organized by One Health Central and Eastern Africa (OHCEA) during 6th to 9th August, 2013, at the Computer lab, 8-4-4 building, Upper Kabete Campus, University of Nairobi.
24. LW. Kanja attended the 13th International symposium on natural products chemistry 22-25 Sept. 2012 Karachi, Pakistan
25. JM Mbaria attended a Technical Working Group 3rd meeting., Kampala, Uganda, 23rd September – 24th September, 2013
26. JM Mbaria attended the 4th International Toxicology Symposium in Africa 2-4th September, 2012
27. EK. Kangethe attended:an FAO/WHO expert meeting 3-7 Sept. 2012, Rome
28. PM. Kitala attended a workshop to plan targeted expansion of innovative training programs 17-20th Sept. 2012, Tanzania

Other Activities

Prof TE. Maitho: Served as External examiner for Sokoine University of Agriculture between 19/7/-29/7/2013.

DEPARTMENT OF ANIMAL PRODUCTION

Introduction



**Dr Jung'a, Chairman
of the Department**

The Department of Animal Production is one of the oldest departments of the University of Nairobi. Located at Upper Kabete Campus, Faculty of Veterinary Medicine, the department is also a full member of the Faculty of Agriculture. Since its inception, the department has participated in the production of several veterinarians, agriculture graduates, food technologists, range managers, agricultural engineers in addition to several Masters of Science in Animal Nutrition, Animal Genetics and Breeding and Management of Livestock production systems as well as many Ph.D.s in specific aspects of Animal science Academic Programmes. The department offers courses in animal production to undergraduates of the faculties of Agriculture and Veterinary Medicine. The year 2012/2013 has seen the department undertake several activities and the success has been very good. Here are some of these activities

Rabbitry Unit

The department has been able to set up a research and teaching rabbitry facility within the college. This unit is used to serve both the undergraduate and postgraduate students within the faculties of Agriculture and Veterinary sciences.



Part of the rabbitry unit at the Department of Animal Production

So far we have the New Zealand white and California White breeds. This rabbit have been presented at the ACK Nairobi International Trade Fare 2013 where the Department won the following awards

- i. Champion Prize for an Adult New Zealand White Doe
- ii. 1st Prize for an Adult New Zealand White Buck
- iii. 1st Prize for a New Zealand White Doe and Litter
- iv. 2nd Prize for an Adult New Zealand White Buck



Some of the awards won at the 2013 ACK Nairobi International Trade Fare

Hatchery

Through the assistance of the Principal the Department has also been able to set up a hatchery facility for teaching and research especially for the indigenous chicken. This facility can be able to hutch 9000 eggs. This facility has had very good hutching rates since it was started. The day old chicks are then taken to Kibwezi for rearing.



Staff preparing the hatchery, loading eggs on the trays, loading eggs to the incubator and collecting day old chicks

Poultry Unit

The department has had very good production from its Poultry unit which sells both high quality eggs and prime broilers. This success has led to increased demand for these products and as such the poultry unit is now being changed from the traditional deep litter system into the cage system of rearing chicken which requires less space and is more efficient for individual bird production monitoring. The department has also expanded its poultry unit to Kibwezi farm where it rears indigenous chicken



Cage System

Deep litter system

Fisheries Degree Programme

The department has also started a new degree programme called BSc. Fisheries and Aquaculture Management with the first cohort of students being admitted to this degree during this academic year. With the help of the Principal the department has also been able to start fish ponds at the field station that will not only be used to teach students but also for income generation through sale of mature fish.

Other achievements and activities

The department has an income generating nutrition laboratory that is also used to offer practical lessons to both undergraduate and postgraduate students
The departmental staff are also involved in several research activities both within and outside the college. This year the department was able to admit students into various courses as shown below.

Degree Programme	Number of Students
Msc Animal Genetics and Breeding	3
Msc Livestock Production Systems	2
Bsc Agriculture (Animal Science Major)	7

There are however 6 PhD. Students still enrolled in the department and 23 Msc. Students taking various specialities within the Department.

DEPARTMENT OF VETERINARY

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.



Prof. P.K. Gathumbi Chairman of the Department

The department is located on 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); and carries out the following other services: diagnostic pathology, diagnostic microbiology, diagnostic

parasitology, poultry clinic, and mycotoxin analysis.

The department is involved in:-

- (1) The 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	TITLE	NO
	Professor	5
	Associate Professor	3
	Senior Lecturer	5
	Lecturer	7
	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 IN UNDERGRADUATE PROGRAMS.

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

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)

PUBLICATIONS

1. Kemboi D.C , H. W. Chege, L. C. Bebora, N. Maingi, P. N. Nyaga, P. G. Mbutia, 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. Mbutia, 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. Njagi L.W, P. N. Nyaga, L. C. Bebora, P. G. Mbutia, 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. Obonyo F.O, 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/bon25036.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. Hungu C.W, 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/humg25003.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".
13. Jael A. OBIERO^{1,5}, Robert KUNYERA¹, Kenneth K. WAITITU¹, **Isaac MULEI**², Idle O. FARAH¹, Kavoo LINGE^{3,4}, Walter JAOKO⁵, Peter G. MWETHERA¹. 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., Kigundu, C.S., Mbuthia, 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., Ndungu, 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, PWN, 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, PWN 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. IN THE LECTURE THEATRE 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, held in the Department of Veterinary Pathology, Microbiology and Parasitology, University of Nairobi, Kenya on 3rd July 2013
3. In December 2013, a stakeholder's workshop on enhancing village chicken productivity through parasite management for effective Newcastle disease vaccination 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. P.K. Gathumbi and 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. 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. 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



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

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 14-23 February 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.

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.

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. Mbutia, was appointed as External Examiner at the Makerere University in the College of Veterinary Medicine, Animal Resources and Biochemistry, Department of Pathology.

- 1) P.G. Mbutia, was appointed as External Examiner at Sokoine University of Agriculture in Tanzania from the dates July 18th to 22nd of July 2012.
- 2) S.M. Githigia, appointed to the Taskforce on National Pig Development Strategy (NPDS) by the Ministry of Livestock Development, Kenya.
- 3) 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.
- 4) P.W.N. Kanyari, appointed as Acting Principal, Embu University College effective from July 16th, 2012.
- 5) P.K. Gathumbi appointed as a supervisor for Mr. Titus Muhu Kahiga PhD Thesis in the department of Pharmacy and Complementary / Alternative Medicine and the School of Health Science.
- 6) 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 college 21-11/2012".
- 7) 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

- 8) *The German students play an interactive game with Kenyan students on how ASAL pastoralists cope with decision making*
- 9) P.G. Mbutia, travelled to the University of Ghana to teach courses in veterinary Pathology during his sabbatical leave and all expenses paid by University of Ghana.
- 10) P.N. Nyaga, examining of MSc Thesis for Joseph Maro Genchwere of Sokoine University of Agriculture entitled: "Spatial and temporal distribution of foot and mouth disease virus in the lake zone of Tanzania"
- 11) P.N. Nyaga, examining a PhD student from Turin University (Isis) Victoriano Llopis) on USUTU virus prevalence in Kenya.
- 12) L.C. Bebora, appointed as one of the members in the evaluation panel during the evaluation and public presentation of Doctor of Science by Prof. Geoffrey Moriaso Ole Maloiy on Friday, June 7, 2013 at the Main Campus.
- 13) P.K. Gathumbi was invited to be the Master of ceremony at the CAVS tree planting day on 19th April, 2013.
- 14) 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) 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) Mbutia P.G. is undertaking teaching at the University of Ghana during his sabbatical leave Dr. S.M. Githigia, attended a pig feeding trial review meeting on June 22nd 2012 in JMB Motel, Kerugoya.

- 17) 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) P.K. Gathumbi, attended a Performance enhancement training from 28th to 29th July 2012 and was awarded a certificate.
- 19) 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) 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 Edith Keya, attended a records management workshop at the Central Catering Unit – CCU, Main Campus.
- 22) 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) 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) 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) 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) 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) P.G. Mbuthia, attended and participated in the Nairobi International Trade Fair for the Year 2012 and was awarded a certificate of appreciation.
- 28) P.K. Gathumbi attended a National Rabbit Development Strategy Programme on 20th November, 2012 at KARI Headquarters- Nairobi
- 29) P.K. Gathumbi attended PREPAR-PHD PROJECT on 26th – 28th November, 2012 .
- 30) P.K. Gathumbi lead the Tree planting ceremony on 2nd November, 2012
- 31) J.K. N. Kuria conducted meat hygiene in Somaliland and Portland on 16th November – 15th December, 2012.
- 32) P.N.Nyaga invited to Facilitate Pandemic Influenza Preparedness Multi-Sectoral Planning Table Top Simulation Exercise for the Government of Kenya 1st – 5th October, 2012
- 33) P.G. Mbuthia, attended a joint Norhed QZA-0443, TAN- 12/0050proposal writing meeting in Zanzibar on 28th February – 6th March 2013."
- 34) 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"
- 35) P.N. Nyaga, attended a One Health conference on co-teaching curriculum development partnerships, at Panari Hotel from 20th January to 25th January, 2013.
- 36) 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.
- 37) 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.
- 38) 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
- 39) 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.
- 40) C.G. Gitao, attended a meeting for National Agricultural Research System (NARS)/KAPAP CGS Collaborative research Projects, 18th June 2013 at KARI, Thika.
- 41) C.G. Gitao, attended a stakeholders workshop to initiate development of the Camel Policy on 10th –12th June, 2013 at Lyseric Hotel, Machakos
- 42) L.C. Bebora, attended an Anthrax and Brucellosis workshop in Nakuru 26th to 28th June 2013
- 43) PWN Kanyari is the University of Nairobi representative to the National Sanitary Pytosanitary Committee.
- 44) PWN Kanyari is the Chairman, Faculty Research Grants and Liaison Committee
- 45) 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 Jointly with the Kenya Veterinary Association at Safari Park Hotel. This event was part of the celebration of the Golden Jubilee of the Faculty of Veterinary Medicine University of Nairobi



A session of 8th biennial scientific conference of the Faculty of Veterinary Medicine 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 based on the – 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. Mbutia, P.G.
- 5) Enhancing village chicken productivity through parasite management for effective Newcastle disease vaccination in Kenya- Funded by RUFORU and led by Prof. Bebora, 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) Commercial production of thermo-stable lactobacilli culture and Yoghurt from Camel milk supported by KAPAP, led by Dr. Gitao C.G.
- 10) 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-OCGS-01-2011-06(700,000\$); Others Prof Wahome(UoN), Tura(KARI), Lamuka(UoN)
- 11) 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)
- 12) 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)
- 13) 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
- 14) M Sc. Project funding: Dr. C.G. Gitao, assisted the following to obtain funds:-
 - a)Maina Migwi: NCST/ST &/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

15) 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.

16) Prof. P.K. Gathumbi, L. W. Njagi, D.N. Karanja, I.R. Mulei and Michael Coughneor (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

DEPARTMENT OF CLINICAL STUDIES

BACKGROUND AND INTRODUCTION OF THE DEPARTMENT

The Department of Clinical Studies is one of the five departments comprising the Faculty of Veterinary Medicine, in the College of Agriculture and Veterinary Sciences and located on the Upper Kabete Campus of the University of Nairobi. Currently, there are three discipline based academic sections; namely Medicine, Surgery and Theriogenology.



Teaching is complemented by the oldest and only Veterinary Teaching Hospital (VTH). This is organized under the Large Animal Clinic which hosts the Large Animal Surgical Theatre, Theriogenology Theatre and Large Animal Stalls and the Small Animal Clinic, which comprises Consultation Rooms, Small Animal Pharmacy, Surgical Theatres and Kennels for Boarding and Hospitalization of Pets, mainly Dogs and Cats. Diagnostic imaging services include Conventional and Digital X-Ray Machine, and Ultrasound. The Haematology, Clinical Chemistry and

Microbiology Laboratories provide support for in-house and referral samples submitted by the Ambulatory Services, Private Practitioners and Research Institutions.

Dr. John Mande, Chairman

Department of Clinical Studies

Majority (60 %) of the 30 academic staff holds PhD degrees, and these include 10 Professors, 8 Senior Lecturers, 6 Lecturers, and 6 Tutorial Fellows. Three clinicians support the Income Generating Activities of the VTH which complement the revenue base for finance Teaching, Research, Diagnostic, Ambulatory, Herd Health, and Extension activities.

An important feature of the department is the number of the Professors and Lecturers in the department display visible administrative and leadership functions in the University of Nairobi (the Deputy Vice Chancellor - Administration and Finance and the Dean of the Faculty of Veterinary Medicine) and Public Universities (the Chancellor of Karatina University and the Deputy Vice Chancellor – Administration and Finance – Egerton University), Kenya Veterinary Association and Kenya Veterinary Board. Others provide technical and management support to the Veterinary Faculty Farm at Kanyariri and the Clinical Studies Income Generating Units, besides conducting cutting edge research, teaching and supervision of undergraduate and postgraduate students and other functions.

ACADEMIC PROGRAMMES

The academic programmes offered in the department

- Master of Science Clinical Studies (MSc Clinical Studies)
- Master of Science Wildlife Health and Management (MSc Wildlife Health and Management)
- Master of Science Theriogenology (MSc Theriogenology)
- Master of Veterinary Medicine (MVet Med)
- Master of Veterinary Surgery (MVet Surg)
- Doctor of Philosophy Clinical Studies (PhD Clinical Studies)
-

In order to facilitate collaboration, efficiency and growth, the Department coordinates teaching of the Bachelor of Science Wildlife Management. In addition, it supports teaching of courses in the Faculty of Veterinary Medicine, such as Diploma Leather Technology, Bachelor of Science Leather Science and Technology, Bachelor of Science Fisheries and Aquaculture Management, Master of Science Veterinary Epidemiology and Economics and Master of Science Natural Products and Bioprospecting. These academic programmes attract a sizeable of undergraduate and postgraduate students from the country and abroad. International students currently admitted in the undergraduate programmes come from South Africa, South Sudan; while postgraduate students include those from Ghana, Japan and South Africa. The current undergraduate and postgraduate student population in the department stands at 286 students.

The research activities are demonstrated by the large number of papers published in peer reviewed scientific journals and presented at national and international scientific conferences and workshops. Academic staff has attracted significant research grants and this trend is expected to grow during the strategic plan period.

COLLABORATIVE LINKAGES

The department collaborates with several research partners including;

- Donkey Sanctuary Worldwide.
- Kenya Veterinary Association.
- Kenya Veterinary Board.
- Kenya Wildlife Service.
- International Livestock Research Institute.
- World Society for Protection Animals.
- Kenya Animal Genetic Resource Institute.
- Pest Control Products Board.

Industry partners are drawn from a pool of reliable suppliers of animal feeds, surgical equipment and consumables, veterinary pharmaceuticals and biological as well as technical services. Some of these industry partners include;

- Unga Feeds Ltd
- Lesukut Ltd
- Coopers (Kenya) Ltd
- Norbrook (K) Ltd
- Bimeda-Assia Pharmaceuticals Ltd

- Department of Clinical Studies

**EXTERNAL EXAMINERS 2012/2013
DEPARTMENT OF CLINICAL STUDIES**

	NAME	DEPARTMENT	INSTITUTION
1.	Professor Mkumbukwa M.A. Mtambo	Department of Veterinary Medicine and Public Health,	Sokoine University of Agriculture,
2.	Prof. Noel Lemree Kanuya Associate Professor	Department of Veterinary Medicine and Public Health,	Sokoine University of Agriculture
3.	Prof. Bittegeko, Salvatory Balthazar Pulcheria Rweyemamu Professor: Veterinary Surgery & Imaging	Department of Veterinary Medicine and Public Health,	Sokoine University of Agriculture
4.	Evans L.N. Taracha	Senior Veterinary Immunologist/Vaccinologist	Institute of Primate Research
5.	Prof. Charity Wangui Gichuki	Head of Research and Development Bureau	Presbyterian University of East Africa Kenyatta University
6.	JOHN KIMANI MUNGAI	Senior Analyst	Government Chemist's Department
7.	Mbaruk Abdalla Suleiman B.	Principal Research Scientist	Institute of Primate Research

POSTGRADUATE STUDENTS GRADUATION LIST – DEPARTMENT OF CLINICAL STUDIES

The following students graduated with the Masters in Clinical Studies degrees as indicated below

	Name	Registration no	Title of Thesis	Supervisors
1	DR. SHARON TSIGADI	J56/7370/2004	Radiographic and Pathological Features of Urinary Conditions in Dogs in Nairobi, Kenya	Prof. Susan W. Mbugua Prof. Peter K. Gathumbi Dr. John D. Mande
2	DR. GILBERT KIRUI	J56/7000/2003	Factors associated with Health and Production of Camel calves in Marsabit District of Kenya	Prof. G.K. Gitau Prof. C.M. Mulei Dr. A.G. Thaiyah
3	MUGO SAMUEL GITAU	J56/72675/2008	Prevalence and Risk Factors of Conditions causing lameness in sheep under free range grazing system in Kajiado District, Kenya	Prof. Njenga Munene John Dr. James Nguhiu-Mwangi Dr. Andrew Gitau Thaiyah
4	ROYFORD MAGIRI BUNDI	J56/78114/2009	The Prevalence, Antibacterial Sensitivity and Usefulness of Petrifilms as a Diagnostic tool for Bovine Mastitis in Mukurwe-ini and greater Nakuru Districts, Kenya	Prof. Charles M. Mulei Prof. George K. Gitau Prof. John Vanleeuwen

PUBLICATIONS BY STAFF IN THE DEPARTMENT OF CLINICAL STUDIES

1. James Nguhiu-Mwangi, Joshua W. Aleri, Eddy G.M. Mogoia and Peter M.F. Mbithi (2013): **Indicators of Poor Welfare in Dairy Cows Within Smallholder Zero-Grazing Units in the Peri-Urban Areas of Nairobi, Kenya**; In: Insights from Veterinary Medicine - InTech Open Science Publications. ISBN 978-953-51-1005-7; <http://dx.doi.org/10.5772/53678>.
2. G. K. Gitau, R. M. Bundi, J. Vanleeuwen and C. M. Mulei. Evaluation of petrifilms as a diagnostic test to detect bovine mastitis organisms in Kenya *Tropical Animal Health and Production*, (2013), 45: (3), 883-886 (DOI: 10.1007/s11250-012-0286-y).
3. W. Kabaka, G. K. Gitau, J. Mariner and N. Abudiku. The use of participatory epidemiology to determine the prevalence rate and economic impacts of PPR and CCPP in Turkana County of Kenya. *Bulletin of Animal Health and Production in Africa* (2012) 60, (3) 241-250.
4. Abuom T.O., Njenga, M.J., Wabacha J.K., Tsuma V.T. and Gitau G.K. Incidence and risk factors of periparturient conditions in smallholder dairy cattle herds in Kikuyu Division of Kiambu District, Kenya. *Ethiopian Veterinary Journal* (2012), 16 (2): 85-102.
5. G. Kirui, G. K. Gitau, A. G. Thaiyah and C. M. Mulei (2012) Health and production constraints in camel calf rearing in Marsabit county of Kenya a Paper submitted for publication
6. Aleri, J W, Nguhiu, J M, Mogoia, E M and Mulei, C M (2012): A note on milking practices in the smallholder dairy production systems of Nairobi and its environs. *Bulletin of Animal Health and Production in Africa*, 60: 565-569.
7. Amenia, H.A., Gathumbi, P.K., Mbaria, J.M., Thaiyah, A.G. and Thoithi, G.N. (2012). In vitro and acute in vivo toxicity of the aqueous and chloroformic extracts of *Rapanea melanophloeos* (L) Mez. *The Kenya Veterinarian* vol. 35 (2) 77-85
8. Thaiyah, A.G., Aleri, J.W., Abuom, T.O. and Mulei, C.M. (2012). A Typical Actinobacillosis in an Adult Friesian Cow. *Bull. Anim. Hlth. Prod. Afri.* Vol 60, No 1, 103-104.
9. J W Aleri, J Nguhiu-Mwangi, E M Mogoia and C M Mulei (2012). Welfare of dairy cattle in the smallholder (zero-grazing) production systems in Nairobi and its environs. *Livestock Research for Rural Development* 24 (9) 2012
10. D.W Gakuya, S.M Itonga, J.M Mbaria, J.K Muthee AND J.K Musau (2013). Ethnobotanical survey of biopesticides and other medicinal plants traditionally used in Meru-Central district of Kenya. *Journal of Ethno pharmacology* 145: 547-553
11. Gakuya, D.W. Itonga, S.M. Mbaria, J.M., Muthee J.K., Musau, J.K. 2013. Ethnobotanical survey of biopesticides and other medicinal plants traditionally used in Meru Central district of Kenya. *Journal of Ethnopharmacology* 145(2)547-553.
12. Nguta, J.M., Mbaria, J.M., Gakuya, D.W., Gathumbi, P.K., Kabasa, J.D., Kiama, S.G. 2012. Cytotoxicity of antimalarial plant diversity to the brine shrimp *Artemia salina* L (Artemiidae). *Drugs and therapy Studies* 2: 64-67.
13. Nguta, J.M., Mbaria, J.M., Gakuya, D.W., Gathumbi, P.K., Kabasa, J.D., Kiama, S.G. 2012. Evaluation of acute toxicity of crude extracts from Kenyan biodiversity using brine shrimp, *Artemia salina* L. (Artemiidae). The open conference proceeding *Journal* 3:30-34.

WORKSHOPS AND CONFERENCES ATTENDED BY MEMBERS OF STAFF IN DEPARTMENT OF CLINICAL STUDIES

1. Mogoia attending training consultant for International Livestock Research Institute (ILRI) on "Working with Animals and Animal Vectors in Animal Containment Level I, II and III" and covering issues on *Animal Handling, Animal Welfare, Biosafety, Biosecurity, Occupational Health and Related Policy and Regulatory Frameworks* (1st – 5th October 2012).
2. Tsuma Trevor attended Inter-University workshop to bring together faculties from One Health Central and East Africa (OHCEA) institutions to nurture collaboration, co-teaching, curriculum review and partnership, 21st -25th January, Panari Hotel, Nairobi, Kenya. Role: Presenter and participant.
3. Tsuma Trevor attended Kenya Veterinary Board (KVB)-Micro Enterprise Support Program Trust (MESPT) national stakeholders workshop on artificial insemination curriculum and refresher training modules at the Kenya Agricultural Research Institute headquarters, 29th November, Nairobi, Kenya. Role: facilitator.
4. Tsuma Trevor Worked safely with genetically modified animals and animal production/health inputs and outputs. Jacaranda hotel, 20th to 21st November, Nairobi, Kenya.
5. Tsuma Trevor attended livestock emergencies guidelines (LEGS) training at Clinical Studies Department, University of Nairobi, 7th to 9th November, Nairobi, Kenya.
6. Tsuma Trevor attended Kenya Veterinary Board (KVB)-Micro Enterprise Support Program Trust (MESPT) workshop on development of a harmonized curriculum for artificial insemination (AI) training in Kenya, and development of refresher training modules for AI service providers, 8th to 13th October, Machakos, Kenya. Role: resource person.
7. Muraya attended ILRI animal safety workshop (Oct. 2012)
8. J Muraya, A N Kipyegon, V T Tsuma and E M Mogoia; Management of Chronic Gangrenous Mastitis in an Adult Lactating Cow Using Partial Gland Mastectomy. *Kenya Veterinary Association 47th Annual Scientific Conference 2013*.
9. J Muraya, H M Mutembe and V T Tsuma; Characterization of the Ovarian Follicular Dynamics in the Kenyan Boran Cow. *Kenya Veterinary Association 47th Annual Scientific Conference 2013*.

10. J Muraya, H Mutembei and C Mulei; Rabies and population control strategy of stray dogs and cats in Nairobi slum areas: A retrogressive study on control of rabies in selected slum areas in Nairobi. *One health conference 2013*
11. Thaiyah Andrew attended the Seventh Global Scientific TEPHINET Conference, 10-15, November, 2012 in Amman, Jordan
12. ThaiyaAndrew attended Prince Mahidol Award conference (PMAC) on One Health. 29th January to 2nd February 2013. Bangkok, Thailand .
13. Thaiya Adrew attended 47th Annual Scientific Conference between 24th and 26th April 2013 at Whitesands Hotel, Mombasa.
14. Kihurani, D.O. (2013). An update on Embryo Transfer activities in Kenya. Presented at the Kenya Veterinary Association Conference, Mombasa, 24-26th April, 2013.
15. Muthee John participated as a team member of Veterinary emergency Response Unit (VERU) in the Tana Delta 4th -8th September 2012 after the tribal clashes
16. Muthee John attended a training course on The Livestock Emergency Guidelines and Standards (LEGS) held at the Faculty of Vet Medicine 7th-9th November 2012 .
17. Muthee John participated in the KAWAN's Animal Welfare Workshop held at the Kabete campus on 5th April 2013
18. Muthee John participated in Kenya Veterinary Association 2013 annual Scientific Conference in Whitesands Beach Hotel 24th-28th April 2013 .

COMMUNITY OUTREACH AND HERD HEALTH PROGRAMMES

The Department undertook the following community outreach and herd health activities

- 5th year Herd Health Trip to Olpejeta Conservancy on 14th December 2012.
- Tree planting, Herd Health and Community Outreach at Kibwezi 16th and 17th April 2013

CONSULTANCIES

- a. East Africa Agricultural Productivity Programme - A project on Enhancing Dairy Goat Productivity in Kenya using Better Breeding Strategies Good Husbandry Practices and Stakeholder Capacity Building between Kenya Animal Genetic Resources Center (KAGRC), Kenya Agricultural Research Institute (KARI) Naivasha and University of Nairobi researchers Dr. Victor Tsuma and Dr. Henry Mutembei.
- b. East Africa Agricultural Productivity Programme - A project on Genetic Improvement on East African zebu cattle for milk production in ASALs Makeni District between University of Nairobi researcher Prof. David Kihurani, Egerton University and Kenya Agricultural Research Institute (KARI) Lanet.
- c. National Council for Science and Technology - A project by Dr. John Muthee funded by National Council for Science and Technology.
- d. International Foundation for Science - A project by Dr. Tequero Abuom on Infectious abortion and its associated risk factors in dairy cattle farms in Nakuru district.
- e. One Health East and Central Africa (OHCEA). A project between University of Nairobi researcher Dr. Andrew Thaiyah and USAID on multi- disciplinary approach to disease surveillance and outbreak response which encompasses animal health, human health and the environment.
- f. World Society for Protection of Animals and Clinical Studies Department Management of Animals in Disasters. A project co-ordinated by Dr. Henry Mutembei.
- g. Embryo Transfer Reference Laboratory

VETERINARY FARM-KANYARIRI

Participation in the Nairobi International Trade Fair 2013 Awards

<p>DAIRY UNIT</p> <p>Dairy cows - One cow won the champion prize.</p> <p style="padding-left: 100px;">Two cows won first prize. Two cows won 2nd prize. Four cows won 3rd prize. Two cows won 4th prize.</p> <p>Best udder - Two 1st class prize. One 2nd class prize.</p> <p>PIG UNIT</p> <p>Pigs - Two Female Champion (gilt) 1st and 2nd position.</p>	<p>POULTRY UNIT</p> <p>Layers Five layers won 1st position each One layer won 2nd position.</p> <p>- One layer won 3rd position.</p> <p>Eggs Six eggs won 2nd position</p>
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<ul style="list-style-type: none"> - Five won 1st position each - Three won 2nd position each - One won 3rd position 	
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FARM PRODUCE

- Bale of hay** - One bale won 1st and 3rd position
Bananas - 1st position

TREE PLANTING AND PLOUGHING CONTEST

Tree planting was done in 2012/2013. 15,000 trees were planted during the long and short rains. The ASK ploughing contest was held in October 2013 the Veterinary Farm.

STUDENTS ATTACHMENTS

Vet Farm also offered attachment to 30 students who are undertaking Bachelor of Vet medicine for 8 weeks.

FACULTY OF AGRICULTURE

The Faculty structure has four departments-- Plant Science & Crop Protection (PS&CP), Land Agricultural Resources Management & Agricultural technology (LARMAT), Food Science, Nutrition & Technology (FSNT), Agricultural Economics. The department of Animal production, housed in the Faculty of Veterinary Medicine, services the two Faculties. Each of the departments is endowed with highly qualified academic and technical support staff. About 95% of the academic staff in the Faculty are trained up to PhD level. The Faculty currently has eight (8) undergraduate and nineteen (19) Postgraduate degree programmes. The programmes have a strong practical component, which puts emphasis on participation in carrying out relevant research and outreach activities aimed not only in increased agricultural production, but also in environmental protection. The programmes are regularly reviewed to incorporate emerging scientific and technological issues in the agriculture, food and environmental sciences. In partnership with researchers from other universities, and



national and international research institutions, staff have been involved in cutting-edge research in various fields, ranging from agronomy, crop

Prof. R. Kinuthia Ngugi
Ag. Dean, Faculty of Agriculture

protection and soil sciences, to food technology and nutrition, and agricultural Economics.

Given that Agriculture is still the backbone of the economy and the main source of export earnings, the Faculty continues to play a pivotal role of improving livelihoods of the Kenya population. Consequently, significant breakthroughs have been made particularly in Diagnostics of Crop Pests and Diseases, Integrated Pest Management (IPM), Crop Improvement, Appropriate Crop Husbandry Technologies to mitigate the vagaries of climate change, production of environmentally friendly goods and services, diversified food products and expertise ready to provide extension and community services. To this end the Faculty has commercialized 11 varieties of beans that are now being sold in supermarkets and is a leader in production of the Bio-fertilizers. The Faculty also has established local and international partnerships with institutions and scientists to enable it execute its functions better. This has expanded opportunities for capacity building, knowledge sharing and fund raising.

Programmes Offered in the Faculty

The faculty offers the following undergraduate programmes:

1. BSc. Agriculture
2. BSc. Food Science and Technology
3. BSc. Food, Nutrition and Dietetics
4. BSc. Range Management
5. BSc. Management of Agro-ecosystems & Environment
6. BSc. Agribusiness Management
7. BSc. Agricultural Education and Extension
8. BSc. Horticulture

Student enrollment in the faculty

BSc. Food Science and Technology.....	35
BSc. Agriculture	93
BSc Range Management.....	30
BSc Agric Education & Extension.....	61
BSc Agribusiness Management.....	92
BSc Food Nutrition & Dietetics.....	35
BSc. Management of Agro-Ecosystems & Environment.....	26
BSc Horticulture.....	27

International students

1. Felicien Ndaruhutse (MSc. Plant Breeding) from Rwanda	16. Katumba Balikitenda Muthalib (Uganda)
2. Maliha H. Saggaf (MSc. Plant Breeding) from Tanzania	17. Osaliya Richard (Kampala)
3. Mpunda Rabson Mulenga (MSc. Crop Protection) from Zimbabwe	18. Egeru Anthony (Kampala)
3. Lwabulala Dickson Maximilian (MSc. Crop Protection) from Tanzania	19. Paul Anguria (Uganda)
4. Caleb Mahoya (PhD Crop Protection) from Zambia	20. Suleiman Muhammad (Nigeria)
5. Mudde Barnabas (PhD Crop Protection) from Uganda	21. Uche Peggy Adaobi (Nigerian)
6. Sserumaga Julius Pyton (PhD Plant Breeding) from Uganda	22. Mkochi Sarah Lewis (Malawian)
7. Gerald Kyalo (PhD Plant Breeding) from Uganda	23. Banda Lydia Ndximenza (Malawian)
8. Ndusha Nabintu Bintu (DRC)	24. Mpeniwawa Kondwani (Malawian)
9. Mngoli Mitsunge (Malawi)	25. Nyasulu Alice (Malawian)
10. Mahinda Athuman Juma (Tanzania)	26. Soni Mitaben Vinay (Indian)
11. Rocha Antonio Jose (Mozambique)	27. Zinet Nezir (Ethiopian)
12. Rumongi Alfred Tabaro (Rwanda)	28. Baluku Safari (DRC Congo)
13. Woldemichael Fikir Alemayehu (Ethiopia)	29. Murye Jesca Wude (Sudanese)
14. Ssekandi Joseph (Uganda)	30. Barughara Evelyne Isingoma (Uganda)
15. Kaira Moses Godfrey Bagiire (Uganda)	31. Habimana Jean de Dieu (Rwanda)

3. Number of graduates in the 2013

PhD.....	7
MSc.....	87

Postgraduate Diploma.....	4
Bsc.Agriculture.....	53
BSc. Agricultural Education & Extension.....	27
BSc. Agribusiness Management.....	29
BSc. Food Nutrition & Dietetics.....	31
BSc. Food Science & Technology.....	38
BSc. Range Management.....	9
BSc. Mngt. Of Agro-ecosystems.....	29

Diploma in Crop Protection.....	6
Postgraduate Diploma.....	4

Faculty Academic Staff Portfolio

Category	No in-post
Professors	11
Ass. Professors	23
Senior lecturers	13
Lecturers	25
Tutorial fellows	11
Graduate Assistant	1
Principal Technologists	1
Chief Technologists	3
Senior Technologists	18
Technologists	22
Farm Managers	2
Total	129

1

DEPARTMENT OF FOOD SCIENCE, NUTRITION AND TECHNOLOGY

Message from the Chairman, Department of Food Science Nutrition and Technology



**Prof. Wambui Kogi-Makau, Chairman,
Department of Food Science Nutrition
and Technology**

Welcome to the Department of Food Science Nutrition and Technology (DFSNT) where we not only manufacture or produce food but also qualified graduates as our contribution towards ensuring that the University community and the larger public are able to access nutritious and safe food and achieve optimal utilization through nutrition and dietetics. The department is endowed with numerous resources, especially human resources: 12 teaching staff with PhDs out of which 5 are associate and full professors. Five of the staff members are under staff development as PhD students. We train both graduate and undergraduates in the fields of Food Science, Food Nutrition and Dietetics, Applied human Nutrition, and Food Safety and Quality. The Department is also a proud producer of milk products including and not limited to cheese, yoghurt, fermented milk

(Mala), pasteurized milk and ice cream. Visitors can also sample meat and pork products among others from our pilot plant. We are also happy to announce that we are innovating in rabbit meat products. For more information, welcome and sample some of our programmes at

www.foodtech.uonbi.ac.ke.



Journal of Human Nutrition Dietetics Food Sciences and Technology (J.HNDFST)

DFSNT is proud to announce its latest innovation, The *Journal of Human Nutrition Dietetics Food Sciences and Technology (J.HNDFST)*. This biannual open access peer reviewed international journal, is a University

of Nairobi scientific product that is published under the aegis of the Department of Food Science Nutrition and Technology. Articles are submitted to the Executive Editor at j.hndfst@uonbi.ac.ke and then sent to reviewers whose opinion form the base on which they are accepted, rejected or returned to the author(s) for enhancement. In keeping with the Departments Performance Contract, the journal transmits new knowledge on various dimensions of *nutrition, dietetics, food science, safety and processing* without discrimination.

As part of University of Nairobi platform, the journal supports the scientific invention, innovation and progress in nutrition, dietetics food and related agriculture (food security, and consumer disciplines). It provides a forum for researchers, academicians, practitioners and food industry workers to disseminate their findings. Its purpose is to provide a platform for transmitting and sharing highly scientific cutting edge research products, allow young scientists (students) to manifest their potential as researchers and also reach out to make visible community knowledge and innovations. Engaging communities, hence inclusion of articles in Swahili, in contributing to the journal is poised to cause a paradigm shift in perception of generation and utilization of knowledge as communities actively engage in producing, demanding and utilising research products while showcasing their innovations. The community outreach on a continuous plane targets demystifying scientific research and empowering citizens as they increasingly recognise the need and usefulness of research and understand better their role in demanding and creating relevant research for their wellbeing hence actively engage in generation, and utilization of research products. Young scientists will get a platform to publish abstracts from their research work hence enhance their visibility as scientist.

"DFSNT takes this opportunity to invite you to submit articles that you desire to have manifested in a high quality publication platform and thus book your space in its first issue to become part of DFSNT's history making".

Correspondence and Submissions: All correspondences are sent to the Chief Editor at the address given below. Manuscripts are submitted electronically as e-mail attachments.

E-mail: j.hndfst@uonbi.ac.ke

Access: <http://journals.uonbi.ac.ke/index.php/JHNDFST>

Editorial Board

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Introduction

The Department of Food Science, Nutrition and Technology (DFSNT) is among the four Departments in the Faculty of Agriculture, College of Agriculture and Veterinary Sciences (CAVS) that is located off Kapenguria Road, 15 Kms to the Northwest of Nairobi. DFSNT degree programmes have evolved from one to six; both in undergraduate and postgraduate with a certificate level course in food safety and quality waiting to be launched. DFSNT serves a wide range of students within Kenya and all over the world. Our programmes have remained competitive as the department attracts students from across Africa including Nigeria, Malawi, Uganda, DRC, Somalia and Mozambique. A number of research activities are carried out by the researchers and students ranging from food security, value addition, and quality management and processing. DFSNT research and development activities address both national and regional issues which lend themselves to key aspects of Kenya's vision 2030.

1.2 Vision, mission, core values and objectives

1.2.1 Vision

To be a global leader in training, research, outreach and consultancy services in post-harvest handling and value addition of agricultural produce, food bioprocessing and technology, food nutrition and dietetics, food safety and quality and natural resource sciences in order to realize sustainable and secure livelihoods.

1.2.2 Mission

To pursue, excel and maintain a world-class leadership role in the quest for knowledge by way of quality research, capacity building, consultancy and innovative outreach in order to contribute to food productivity and safety and secure livelihoods through sustainable value addition and natural resources management.

1.2.3 Core Values

The Department operates within certain treasured beliefs, which have contributed to its success. The Department as part of the College of Agriculture and Veterinary Sciences shall endeavor to uphold the following values:

- Uphold professionalism and ethics in all its dealings with its stakeholders.
- Be accountable and transparent in all its operations.
- Uphold integrity, honesty and quality in training and all other activities.
- Promote participatory management and effective teamwork in all its activities and operations.
- Promote and maintain linkages with industry, other institutions and alumni.
- Uphold dignity of all members of staff and students.
- Recognize and esteem ideas and innovations.

2. Outreach activities

Every year, the department reaches out either to the communities, hospitals or industries in order to maintain important linkages as well as contribute towards national development. This year the department had a number of outreach activities but we elaborate on two major ones which largely involved our students.

2.1 Western Crescent

The BSc. Food Science and Technology students, class 2013/2014 made the much coveted visit to many processing industries which stretch towards the western Kenya. The students visited canning industries, vegetable processing and tea industries, beverage, sugar and fish industries among others. This visit remains important part of the food science curriculum where students manage to link what is taught in class to realities in industry.



Students visit Njoro Canning Factory and Wheat Research Centre, KARI in Njoro-Nakuru



A visit to James Finlays Tea Factory in Kericho and Agrochemicals of Muhoroni



A visit at Peche fish factory in Kisumu and Dominion rice fields and factory in Siaya

2.2 Community nutrition problem diagnosis and outreach 2013, Kibwezi

This year DFSNT Community Outreach and Training Programme was conducted on the 7th to 12th April 2013 in Kikumbulyu Location in Kibwezi District. The events involved a community survey which determined the nutrition and food safety problems in the area. Piloting for this exercise was carried out in Ndeiya in Kikuyu.

The main objective of the survey was to;

- i. Course work for the students: Community Nutrition Problem diagnosis
- ii. To determine the demographic characteristics of households,
- iii. To assess household food safety, food security and livelihoods as well as dietary intake of the children
- iv. To assess the morbidities, nutritional status, immunization coverage, supplementation, worm infestation, haemoglobin iron status of children aged 6 to 59 months.
- v. Referral of malnourished and sick children
- vi. Deworming of children
- vii. Community education and dissemination of survey findings through a Chief's Baraza

Outcomes:

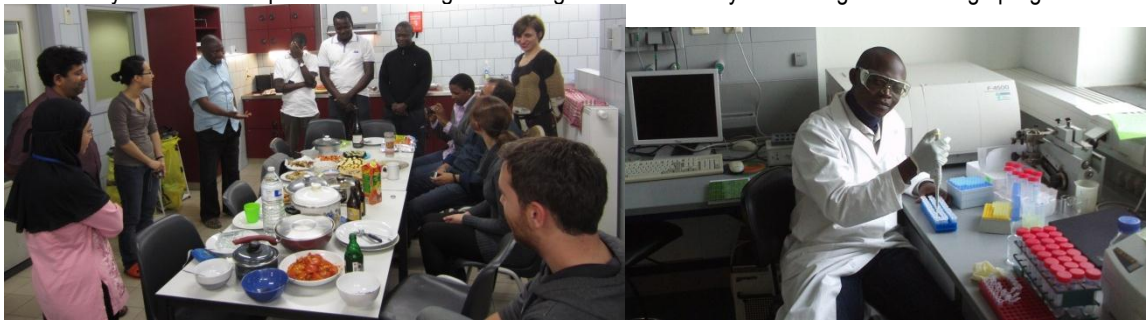
- During the survey 158 households were visited.
- Preliminary results of survey:
 - 47% of households were farmers while 27% were casual labourers
 - 60% of households bought food from the market while 3% depended on food aid.
 - 9% of households lacked toilet facilities and hence shared with their neighbours.
 - 1 out of 10 children had worm infestation.
 - 3% of the mothers exclusively breastfed their children.
 - Global Acute Malnutrition was 3%, moderate stunted children were 48% while prevalence of Iron Deficiency Anaemia was 33%.
- 400 children below 5 years were dewormed
- Final report of the findings will be submitted to the area of study as part of feedback.



Community members, University staff and students during the Kibwezi outreach meeting

3. Capacity building and personal development

In this period, a number of DFSNT staff attended courses and trainings within and outside Kenya. Dr. Kunyanga attended Food Safety course in Europe while Dr. Abong' was in Belgium and Germany for training and exchange programme



Dr. G. Abong' (back right) during a get together for food safety trainees in University of Ghent, Belgium. Left is Dr. Abong' in the Technical University of Dresden labs in Germany during Mundus exchange programmes

4. Conferences, workshops

4.1 EAAP funded cassava value addition project

University of Nairobi executed part of the cassava value addition project. This project is led by Prof. S. Shibairo and has in its team from Prof. M.W. Okoth, Dr. G. Abong' and Mr. P. Lamuka.



Prof. M.W. Okoth of DFSNT, a member of the EAAPP Cassava UON research team during mini conference in Naivasha



EAAPP Cassava team visits Mtwapa ATC principal and multiplication fields

4.2 RELAOD Meat project

- Dr. C. Kunyanga, Prof. M.W Okoth and Mr. Lamuka finalized a major project on Meat Value Chain in the RELOAD Project "Reduction of losses and value addition by strengthening small and medium enterprises in food processing to sustain value chains in East African postharvest systems" sponsored by the Federal Ministry of Education, Germany.

Activities

- Baseline surveys on meat processing among pastoralist communities and slaughterhouses in Kenya
- Market survey on meat products and technologies used
- Training of SMEs on value addition of meat.

4.3 SPIRIT: Strengthening Potato Innovation through Research and Innovative Technologies

This is a capacity building project running across East Africa was finalized and contracts signed by the UoN Vice chancellor. This project, coordinated by Dr. George Abong' brings four East African countries (Uganda, Rwanda, Tanzania and Kenya) and two European organizations and is funded by the European commission.

5. Other activities

5.1. Tree planting



CIC Chairman, Mr. Charles Nyachae addressing participants, Dr. G. Abong' of DFSNT (Centre) among those who planted trees

A New Project

A new research and technology development project namely; ERAfrica – IC – 025: FBRE-PRO 2014 – 17, has been funded by ERAfrica group of funding parties (GFP) under the EU's 7th Frame work program. The project on “**Tailored fermentation for delivery of whole grain and fiber rich cereal products: promoting dietary fiber intake in Africa and Europe**” is conceptualized and designed on the basis of bio-functional and health enhancing properties associated with dietary fibers as prebiotics and modulators for good gut's microbiome. Invitro bio-modification of dietary fiber in food systems through appropriate fermentation and particularly wholegrain cereals like in sorghums and millets can be expected to lead in to development of nutritionally enhanced and healthy therapeutic products that are acceptable in Africa and Europe taking any cultural constraints into consideration. Such products would take advantage of rapidly growing global niche market for healthy foods, as well as have a definitive and verifiable healthy impact on deserving populations both in Europe and Africa.

DEPARTMENT OF AGRICULTURAL ECONOMICS



The Department of Agricultural Economics is as old as the Faculty of Agriculture, established in 1970. Initially the department offered various service courses for BSc Agriculture only, but has now diversified to offer several undergraduate and postgraduate programmes. In partnership with local and international research institutions, the department conducts research in agricultural economics, policy and agribusiness.

The two MSc programmes are also offered at PhD level. These programmes are reviewed to reflect emerging scientific and technological issues in agriculture, food, environmental, applied economics, Extension and educational sciences. Notable among such rapid changes relate to knowledge in the areas of biotechnology, strategies in extension,

DrFred Mugivane information technology, agribusiness management and entrepreneurship

Chairman, Agricultural Economics

development and environmental quality. Emphasis is placed on practical and applied training, research and outreach. The training provides knowledge and skills in agricultural production, marketing value chain environmental issues.

BRIEF REPORT ON DEPARTMENTAL ACTIVITIES 2012/2013

The Department of Agricultural Economics 2012/2013 activities included the following:

- Participated in the 10th CAADP Partnership Platform (CAADP PP) on 19th to 21st March, 2014 at the International Conference Centre in Durban, South Africa – Prof. Willis Oluoch – Kosura represented the Department. This was a comprehensive Africa Agricultural Development program organized by The African Union Commission and NEPAD Agency.
- Participated in A Stakeholder Workshop to validate The Capacity Needs Assessment for Establishment of Kenya's Strategic analysis and knowledge management system on 13thFebruary, 2014 at the Crowne Plaza Hotel – Nairobi. Knowledge products to improve policy making track progress, benchmarking etc of African Agriculture Development was represented by the Chairman, Dr. Fred I. Mugivane.
- Participated to the Triple – L Workshop at the Sven Love'n Centre for Marine Sciences at Tjarno, Sweden on 11th February to 14th February, 2014. The purpose was to develop joint research grant to the Swedish Research Council and Formas – within the Framework of Land, Livestock and Livelihood Dynamics in Dryland Systems Initiatives – The Department was represented by Dr. David Jakinda.
- The Department participated in the Joint Writer's Workshop for CAE, CAVS and CEES from 2nd to 6thFebruary, 2014 at Kenya Wildlife Training Institute, Naivasha. Dr. Fred I. Mugivane represented the Department.
- The Department participated in the AGRA – WAGENINGENUR WORKSHOP held on 15th – 17th January, 2014. The Department was represented by Mr. Evans Ligare Chimoita and Ms Mary Chao Babu. Both are PhD candidates and Tutorial Fellows in Agricultural Education and Extension.
- Dr. John Mburu travelled to South Africa as an External Examiner for Ezekiel Ndunda who was defending his PhD Oral Examination at the University of Pretoria on November 22nd 2013.
- The Department was represented by six researchers at the 4th, CAAAE Tunisia. This was the 4th International Conference of the African Association of Agricultural Economists held at Hammamet, Tunisia. The six were Prof. Willis Kosura, Prof. O.L.E Mbatia, Dr. Rose Nyikal, Dr. John Mburu, Ms Mary Nthambi, and Ms Jane Chege. Dr. Nyikal is the Current Secretary/Treasurer for AAAE.
- Dr. Fred Mugivane, Chairman, Agricultural Economics attended and participated in MSc – CMAAE Curriculum Review Workshop held on July 29th August to 2nd September 2013 at the University of Pretoria, South Africa.
- The Chairman of the Department participated in Intellectual Property Rights Sensitization Workshop for Heads of Departments and other stakeholders held on 17th – 18th July, 2013 at Central Catering Unit Hall.

- The Department participated in a workshop aimed at realigning its strategic plan with the College and University strategic plan held at the Kenya School of Monetary Studies (KSMS) from 16th – 18th May, 2013. Dr. Fred Mugivane represented the Department.
- On 19th March, 2014 the Chairman of Agricultural Economics Dr. Fred Mugivane, attended the launch of the University of Nairobi Student One Health Club, an organization that brings together Veterinary, Medical, Public Health, Agriculture and Nursing Students from the University of Nairobi.
- The Chairman of the Department attended the Sensitization Workshop on Postgraduate Matters for Deans/Directors, Chairmen of Departments held on 10th December, 2013 at the Central Catering Unit (CCU).

DEPARTMENT OF PLANT SCIENCE AND CROP PROTECTION



Prof. G.N. Chemining'wa
Chairman of the Department

The Department of Plant Science and Crop Protection started as two departments, Department of Crop Production and Department of Applied Science, in the Faculty of Agriculture in 1970/71 within the College of Agriculture and Veterinary Sciences (CAVS) at the Upper Kabete Campus. The two departments were later re-organized, merged and renamed the Department of Crop Science. In 1997, the Department of Crop Science was split into two departments namely, Department of Crop Science and Department of Crop Protection. In 2005, the two departments were merged to form the Department of Plant Science and Crop Protection. After the merger, the department was re-organized into two sections; Crop Science and Crop Protection. The Crop Science Section comprises Agronomy, Horticulture, Plant Breeding and Biometry units, while the Crop Protection Section comprises Plant Pathology and Entomology Units. The Department teaches most of the courses for the BSc Agriculture Programme offered by the Faculty of Agriculture. It offers a BSc course in Horticulture, Diploma in Crop Protection, a certificate course in Floriculture and services 51 courses for different departments at CAVS. The Department also offers masters and PhD programmes in Agronomy, Plant Breeding and Biotechnology, Crop Protection, Horticulture, Agricultural Resource Management and Seed Technology and Business Management. .

The Department holds a premier position in the provision of quality teaching, research, outreach and consultancy services because of high quality and committed staff, adequate facilities and an established culture of high performance. We undertake rigorous training at both undergraduate and postgraduate levels. The department has in the recent past introduced Open, Distance and e-Learning (ODL) to cater for students whose work engagement may not allow them to be away from the workstation for prolonged periods. The ODL mode of delivery was initially piloted in 2010 with M.Sc. Crop Protection and has now become the mode of choice for most prospective students. The programme has now been expanded to include M.Sc. Horticulture, M.Sc. Agronomy, and M.Sc. Agricultural Resource Management. As a result, the number of postgraduate students has increased significantly. The Department has over 20 PhD students enrolled in its various academic programmes. Postgraduate students are drawn from the East African Community, Southern Africa and even North America, making our programmes truly international.

The Department has continued to remain competitive in research and development both locally and globally. It has strong linkages with national, regional and international research and education institutions. Most academic staff members are very active in seeking funds externally from donors by writing winning proposals. Researchers in the Department have developed new bean varieties that are rich in iron and zinc compared to ordinary bean varieties, as a strategy to deal with micronutrient malnutrition or hidden hunger. Research and development projects in cassava, banana, sorghum, maize, grain legumes, indigenous vegetables, mango, passion fruit, millet and snap bean have also been implemented jointly with stakeholders. It is worth noting that the Department has been a leader in the University in terms of protecting and commercializing its intellectual assets. To protect its intellectual property rights, the Department has developed partnerships with local seed companies to deliver the bean seed to the ultimate end users, the farmers.

The Department also undertakes consultancies and advisory services. It has carried out efficacy trials of agricultural chemical molecules for over 10 chemical companies in the country. These trials provide opportunities for internship for our recently graduated B.Sc. agriculture and horticulture students. The Department also carries out disease and pest diagnostics and assists farmers and other stakeholders to establish crop enterprises, particularly in the horticultural sector.

The Department hosts a centre of excellence in seed technology and business known as SEMIS – Seed Enterprise Management Institute. With its partners, it has offered and continues to offer short term courses in seed technology and business related areas for managers of seed companies in Sub-Saharan Africa with support from the Alliance of a Green Revolution in Africa (AGRA). The Institute has established a modern seed processing factory next to the Departmental office at the Field Station. This facility will be a key in training postgraduate students in seed processing.

Members of the Department are actively engaged in implementation of outreach activities among communities and organizations. In fact, almost every research project has an outreach component in which the researchers disseminate innovations to farmers and build capacities of different stakeholders. This is important for improving the uptake and adoption of research outputs. Many members of staff attend and present papers at high profile workshops and conferences organized at national, regional and global levels. The Department actively participates in national and regional research and educational exhibitions. Some of our academic staff and students have won awards in scientific forums held locally and globally. Besides, a number of our academic staff members have played major roles as members of boards, councils and committees of national, regional and global bodies.

The environment in which the Department operates is very dynamic. Consequently, the Department is confronted by new challenges and exposed to new opportunities. To overcome the challenges and exploit the opportunities, it has developed a strategic plan that will guide it in the next five years (2013 – 2018) towards achievement of its vision of a leading and vibrant centre of excellence for training, research, consultancy and outreach in Crop Sciences and Environmental Conservation. The department continues to build on its strengths in crop diagnostics, crop management, integrated pest management, quality seed development, molecular breeding and biometrics to improve its institutional competitiveness and image.



Photo during hands on training of technical staff on RT PCR in our Molecular Genetics Laboratory



Members of department celebrating retired colleagues at the Faculty Club-Kabete



Prof. R. Michieka planting a tree during RRI activities on Constitution of Kenya (2010) at the Field Station Prof. P.O. Ayiecho (in a suit) among

students listening keenly to a speech by Mr. Charles Nyachae (CIC-Chairman) on Constitution of Kenya 2010 held at the Field Station in 2013, as part of the RRI activities.



Staff and M.Sc. students at the launch of ODL M.Sc. Agricultural Resource Management (2013)

A summary of the current number of teaching staff in the Department

CATEGORY	NO. IN POST
Professor	6
Associate Professor	12
Senior Lecturer	3
Lecturer	8
Assistant Lecturer	5
Tutorial fellow	-
OTHER	
Graduate Assistant	-
Part- time lecturer	
Total	34

Post-graduate and Diploma Programs in the Department

	PROGRAM	Number of students Registered in 2012/2013	Number of students who graduated in 2012/2013
1.	MSc Crop Protection	25	6
2.	MSc Horticulture	6	2
3.	MSc Agronomy	4	5
4.	MSc Plant Breeding & Biotechnology	3	4
5.	MSc Agricultural Resource Management	6	1
6.	MSc Plant Pathology	-	1
7.	PhD Crop Protection	6	3
8.	PhD Horticulture	1	-
9.	PhD Agronomy	3	-
10.	PhD Genetics and Plant Breeding	3	1
11.	Diploma in Crop Protection	15	10
	Total	72	33

d). Students admission

Admission criteria are specified in the senate approved curricula. There is an upward trend in admission for MSc, Diploma and PhD programmes.

OUTREACH AND COMMUNITY SERVICE;

1. Chemining'wa, G. N., External examination at Chepkoilel University College, 3rd to 8th August 2012.
2. Muthomi, J. W., External examination at Chepkoilel University College, 3rd to 8th August 2012.
3. Shibairo, S. I. External examination at Maseno University, 12th to 18th August 2012.
4. Muthomi, J. W. External examination at Masinde Muliro University of Science and Technology, 2011 to date
5. Muthomi, J. W. . External examination of postgraduate theses at University of Eldoret, 2013
6. Muthomi, J. W. . External examination of postgraduate theses at Jomo Kenyatta University of Agriculture & Technology, 2012
7. Muthomi, J. W. External examination of postgraduate theses at Egerton University, 2012
8. Muthomi, J. W. External examination of postgraduate theses at Kenyatta University, 2012
9. Agricultural Sector Development Forum – Exhibition at Safari Park Hotel, 14th –17th October 2012.(Dr. J. Kinama and Mr. D. Karanja)
10. Tree planting in Kibwezi Field Station – Approximately 2000 trees planted on 23rd November 2012. Will Chebii and Michael Maobe represented the department.
11. On farm trial at Mwea by Dr. G. N. Chemining'wa, Prof. P. M. Kimani and J. Kamanu, November 2012.
12. Farmer perception of Aflatoxin control using biological control – aflasafe in Eastern Province. 4th Oct 2012 and 5th Oct 2012 at Kangundo and Kathiani districts respectively.
13. Training SEUCO 2ndyear undergraduate students, on Familiarization with soil and crop science equipment and green house production practices, which included: Equipment to measure transpiration and quantity of light in crops, 24th May 2013. Maobe A. M. - Crop Science Section.
14. Training of students from Midas Golden Academy on familiarization of different crop pests.13th June 2013. Wagura J. K. – Entomology Unit.
15. Training of farmers on harvesting and postharvest handling of African leafy vegetables (ALVs) held on 12th to 14th June 2013, in Kakamega, Western Province. Dr. C. Onyango.
16. Training of farmers of postharvest handling and processing of mangoes and bananas in Nkubu, Meru Country held from 16th to 22nd June 2013 . Dr. C. Onyango.
17. On-farm trials of integrated. Crop Management technologies for snap bean production at Mwea. June 2013. Dr. G. N. Cheminingwa.
18. Kimani P. M. Appointed a member of the National Varieties Release Committee with effect from 24th May 2012, by the Ministry of Agriculture through the Managing Director of KEPHIS.
19. Documentation of women knowledge, experiences attitudes, perceptions and practices in relation to food security and providing relevant professional advice to women groups in Baringo County. Food security project coordinated by the Women Study Centre. – 15th to 20th April 2013. Prof. F. Olubayo and Dr. M. Hutchinson.
20. Meeting with farmer groups to discuss on their agriculture and innovation histories and mapping out their agriculture communication pathways. It also involved assessment of the impact of their innovation activities on their incomes and livelihoods, and on the local economy.
21. Dr D. W. Miano. Training of Virus resistance cassava for Africa (VIRCA) Project staff on Regulatory compliance on Biosafety. Held on 18th December 2012 at KARI Mtwapa.
22. Dr D. W. Miano. Training of Virus resistance cassava for Africa (VIRCA) Project staff on Regulatory compliance on Biosafety. Held on 18th December 2013 at KARI Alupe

RESEARCH ACTIVITIES

1. SEED ENTERPRISE MANAGEMENT INSTITUTE (SEMIs) PROJECT AT CAVS

www.semis-africa.org

The Seed Enterprise Management Institute (SEMIs) is a collaborative capacity building and food security initiative between the University of Nairobi, Alliance for a Green Revolution in Africa (AGRA), Iowa State University (ISU), International Maize and Wheat Improvement Centre (CIMMYT), Kenya Agricultural Research Institute (KARI), Kenya Plant Health Inspectorate Services (KEPHIS), private and public Institutions in the seed sector and independent consultants. SEMIs was established in February, 2000 with the primary objective of providing capacity to the seed industry in sub-Saharan Africa.

SEMIs Management:



- 1.1 Professor Agnes Mwang'ombe is the SEMIs PI and the principal of the the College of Agriculture and Veterinary Sciences. She holds a BSc. Agriculture - University of Nairobi, MSc. Plant Pathology - University of Nairobi, and a PhD. degree and DIC in Plant Pathology - Imperial College



Professor Florence Olubayo is an Agricultural Scientist and Associate Professor with emphasis in Integrated Crop Pest management, Post harvest pest management and Agricultural Technology transfer. She holds a PhD in Agricultural Entomology from the University of Newcastle Upon Tyne (UK), MSc in Agricultural Entomology and BSc in Agriculture from the University of Nairobi. She is a member of the SEMIs management team and a resource person in some of the training courses



Professor Kiarie Njoroge holds a PhD in Plant Physiology and Breeding from Cambridge University (England), an MSc in Agricultural Botany from University of Wales (UK) and a BSc (biological sciences) from University of Nairobi (Kenya). He is a member of the SEMIs management team and a resource person in the training courses.



Dr . David K. Ndung'u is the project Manager of SEMIs involved in the day to day running of the project. Dr. Ndung'u is a plant breeder with a PhD degree in plant breeding from the University of KwaZulu Natal.

Other staff includes Florence Kiwunja, the office administrator, Rosebenna Cherono a field technician and, Francis Maina, Caroline Ndumi, and Basil Kirangu who assist in field operations.

Seed Courses offered at SEMIs

The main objective of SEMIs is to provide capacity to the seed industry in sub-Saharan Africa. SEMIs trains seed sector personnel from across sub-Saharan Africa on seed technology and business. Most of these seed sector personnel are staff from seed companies operating from across the continent, who are in need of short term training on seed issues right from production to marketing and distribution. Currently the project is concentrating on five very important seed courses:

1. **Seed production:**
 - The overall objective of the course is to enhance the participants' practical knowledge and skills for quality seed production and regulatory aspects of seed production in a commercial context.
2. **Seed drying, processing and storage:**
 - The course is structured to equip the participants with practical knowledge of the basic concepts involved in drying, processing and storage operations typically utilized to prepare a seed lot for marketing and use.
3. **Seed Business Management:**
 - This course is designed to expose participants to knowledge of sound business practices which will enable them to build healthy and sustainable seed enterprises.
4. **Seed Marketing:**
 - The overall objective of the course is to enhance participants' knowledge and skills on effective marketing approaches which will enable them to better serve and retain their existing customers and attract new ones.
5. **Seed Quality assurance and Seed Enterprise Quality Management:**

- The overall objective is to enhance participants' practical knowledge and skills on seed testing, quality assurance and certification, and quality procedures that relate to overall quality of different departments within the seed company

Over the four years that SEMIs has been operational, 528 seed practitioners from 17 sub-Saharan African countries, including, Uganda, Tanzania, Zambia, Malawi, Ethiopia, Mozambique, Nigeria, Niger, Ghana, Mali, Burkina Faso, Guinea, Sierra Leone, Liberia, Cameroon, South Sudan and Kenya, have received training on seed technology and business at SEMIs.

Course	2010	2011	2012	2013	Total
Seed Production	29	27	30		86
Seed Drying Processing and Storage	31	28	31		90
Seed Business Management	29	26	29	25	109
Seed Marketing	28	25	30	27	110
Seed Quality Assurance	30				30
Seed Legislation and Accreditation	25				25
Seed Quality Assurance and Seed Enterprise Quality Management		26	29		55
Total(Yearly)	172	132	149	52	505

The technical knowledge acquired at SEMIs by these seed company personnel is translating into increased seed volumes and enhanced quality of seed resulting in increased food production and poverty alleviation within the continent. SEMIs is also enhancing linkages between individual seed companies, and seed companies and public and private institutions for improved business.



SEMIs Lecture session at the College of Agriculture and Veterinary sciences (CAVS)



SEMIs laboratory practical sessions at CAVS



SEMIs seed practitioners in a lab session at CAVS



SEMIs participants visiting an Agro-dealer shop to familiarize with movement of seed in the seed value chain.



SEMIs concentrates a lot on experiential training-SEMIs participants on a visit to the Njoro wheat breeding facility



SEMIs participants on visit to Dryland Seed company in Machakos Kenya

The SEMIs instructors and facilitators are drawn from the University of Nairobi, KEPHIS, KARI, Iowa State University, CIMMYT, seed companies and other public and private institutions engaged in the seed value chain.

BEAN PROJECT AT SEMIs

Apart from training seed practitioners SEMIs is also involved in bean Seed production at CAVS. One of the major challenges for food security is availability of foundation seed that is required by seed companies for seed bulking and production of certified seed. SEMIs is producing Breeder seed of high yielding bean varieties developed and bred at UON and in the process helping seed companies upscale seed production and ensuring the benefits of research in the form of new varieties developed are accessible to the end user who is the small scale farmer.



Bean seed crop at field station at CAVS



The principal CAVS, professor Mwang'ombe, officially handing over a consignment of breeder seed to Simlaw seed company (an affiliate of Kenya seed company) CEO, Mr. Azarai Soi.

SEMs Infrastructure Development at CAVS

In order to maximize benefits of seed for the small-scale farmer, SEMs is also developing infrastructure for certified seed production. The SEMs seed processing unit constructed at the field station (CAVS) will have a production capacity of over 5 metric tons of seed per hour upon completion. This unit will be used for processing of certified high quality seed for UNISEED, the university of Nairobi seed company. It will also be available for processing of seed from seed companies that do not have processing facilities.



The seed processing factory constructed at the field station is complete and soon a seed processing line will be installed in the facility

On completion of the seed processing facilities, SEMs will also construct a modern seed laboratory at the field station which will complement the seed processing unit. The seed laboratory is envisaged to be one of the Kenya Plant Health Inspectorate Service (KEPHIS) accredited seed laboratories that will in the near future be rolled out. These accredited seed laboratories will perform seed quality assurance on behalf of the regulator, KEPHIS in order to hasten the process of seed quality control and ensure that farmers can quickly access high quality seed for improved yields and poverty alleviation.

Disseminating Seed information

To bridge the gap on seed information, the project has a website www.semis-africa.org that is a one-stop shop for seed-related information. SEMs staff also actively participate in agricultural conferences, meetings and workshops both within and without the African region.



SEMs was represented at the Agricultural Sector development Forum (2012) which was graced by H.E. President Mwai Kibaki of Kenya



H.E. Mohamed Shein, president of Zanzibar visits the SEMs stand at the African Seed trade Association (AFSTA) congress in Zanzibar in February 2012.

1. Enhancing the Postharvest Shelf Life of Passion Fruits Grown under Different Agro-Ecological Conditions through Application of an Ethylene Inhibitor, 1-Methylcyclopropene (1-MCP).involving JKUAT and University of Nariobi - - Dr. J. Ambuko (2011- 2012)

2. Strengthening Capacity for Marker Assisted Breeding for Common Bean in Eastern Africa, Investigators: Prof. P. M. Kimani, Dr. E. Ngugi, Dr. Narla. Funded byKirkhouse Trust of United Kingdom. University of Nairobi, Makerere University. (2009-2012)
4. Improving incomes for smallholder farmers and other value chain actors through enhanced productivity, post harvest handling technologies, value addition and marketing of mango and passion fruit products. Funded by Kenya Agricultural Productivity and Agribusiness Program (KAPAP). Investigators: Dr. J. Ambuko, Mr. J. Njuguna, Dr. M. Mwangi, P. Mbogo, L. Wekesa, F. M. Kiilu, Dr. W. Owino, P. Mwangi Collaborators University of Nairobi, KARI, Kenyatta University, Kamurugu/RIDA, KEFRI, Kamumo Products, JKUAT, KENFAP. (2011-2014)
5. Multipurpose legumes and management strategies for reinvigorating and maintaining the health and productivity of smallholder mixed farming systems. Funded by Mcknight Foundation. Investigators: Dr. J. W. Muthomi, Dr. Ojiem, Prof. J. H. Nderitu, Dr. S. Mwonga. University of Nairobi, KARI, Egerton University, Cornell University, Food Supply Organization (REFSO). (2011-2013).
5. Conserve and screen premium value indigenous plant biodiversity and products on small-holder farming systems of Lake Basin in East Africa. Funded by RUFORUM. Investigators: Dr. Namutebi, Prof. L. S. Akundabweni University of Nairobi Makerere University. (2011-2013)
6. Mechanisms for multiplication and distribution of disease free planting material for improved passion fruit production National Council for Science and Technology. Investigators: Dora C. Kilalo, Dr. M. Hutchinson, Mr. Kori Njuguna, Dr Esther Kimani, Mrs. Lucy Njenga, Mrs. Lydia Njuguna Collaborators. University of Nairobi, KARI, KEPHIS, Ministry of Agriculture, KHCP. (2011-2013).
7. Passion fruit diagnostics and identification of passion fruit viruses. Funded by Australian Challenge Fund. Investigators: Dora C. Kilalo. Collaborators: University of Nairobi, BecA-Hub ILRI, KEPHIS, KARI. (May 2012-Oct 2012).
8. Development of Integrated management methods for banana weevil in Central province. Funded by National Council for Science and Technology. Investigators: Dr. Shelminth Waruguru, Prof. J. Kimenju & D. Kilalo.Collaborators: KARI, University of Nairobi, JKUAT. (2012-2014)
9. Enhancing sorghum production, processing and marketing for improved small-holder incomes and livelihoods in Kenya Kenya Agricultural Productivity and Agribusiness. Project Funded by (KAPP) Investigators: Dr. Erick Cheruiyot, Dr. E. Ngugi, Prof. G. Ouma, Mr. M. Kaibui, Dr. J. Mutysia, Dr. J. Mukhwana, Dr. I Agina, Dr. J. Mutunga, Mr. L. Maina. University of Nairobi, Egerton University, Bondo University,JKUAT, SACRED Africa, KARI, Spectra International –Kisumu, East African Breweries. (2011-2013)
10. Amaranth grain production and value addition for improved livelihoods in the Lake Victoria Basin (LVB). Funded by VicRes. Investigators: Dr. D. Nakinbugwe, Dr. R. Nyankanga, Dr. J. Mugisha, Mrs. D. Madinde, Ms. W. Nyamota. Collaborators: University of Nairobi, Makerere University Uganda, VEDCO. (2008-2012)
11. Value added bean technologies for enhancing food security, nutrition, income and resilience to cope with climate change and variability challenges in Eastern Africa. Funded by Bioresources Innovation Network for Eastern Africa Development (Bio-Innovate). Investigators: Prof. P. M. Kimani/Mr. D. Karanja.Collaborators: University of Nairobi, KARI, ISABU (Burundi), Trufoods (K) Ltd, PABRA (Uganda), SARI (TZ), Sokoine University of Agriculture (TZ) ISAR (Rwanda)& EAIR (Ethiopia). (2011-2013).
12. Improving tropical legume productivity for marginal environments in sub-Saharan Africa. Funded by GCP/CIAT. Investigators: Prof. P. M. Kimani. Collaborators: University of Nairobi (CIAT, EAIR (Ethiopia), PABRA, Agric Research Council-Zimbabwe, CIAT-Malawi, Chitedze Agric Research Institute-Malawi. (2009-2012).
13. Strengthening Capacity for Marker Assisted Breeding for Common Bean in Eastern Africa. Funded by Kirkhouse Trust of United Kingdom. Investigators: Prof. P. M. Kimani, Dr. E. Ngugi, Dr. Narla.Collaborators: University of Nairobi, Makerere University. (2009-2012.)
14. Enhancing Kenya's food security in the face of climate change through improved potato productivity Funded by National Council for Science and Technology. Investigators: Dr. R. Nyankanga Dr. Charles Lungaho, Prof. S. Shibaio. Collaborators: University of Nairobi KARI-Tigoni. (2011-2014).
15. Screening finger millet varieties for adaptation to drought prone ecological regions of eastern kenya as a strategy to combat food insecurity and climate change. Funded by National Council for Science and Technology. Investigators: Prof. S. Shibaio, Dr. R. Emongor, Dr. C. A. Oduori, Dr. J. Ambuko, Dr. R. Onwonga. Collaborators: University of Nairobi, KARI. (2011 – 2013).
20. Contribution of *Cleome gynandra* (cat's whiskers) to food, nutrition and income for rural populations. Funded by UoN Deans Committee grant. Investigators: Dr. Cecilia M. Onyango, Dr. R. Narla, Dr. Catherine N. Kunyanga (2011-2014).
21. Occurrence and evaluation of maize germplasm to common rust disease in Kenya. Funded by UoN Deans Committee grant. Investigators: Dr. W. Muiru.(2011-2014).
22. Building human and institutional capacity for enhancing the conservation and use of neglected and underutilized species of crops in West Africa, and Eastern and Southern Africa. Funded by International Foundation for Science. Investigators: Dr. K. Njoroje, Dr. Ekaya, Dr. Per Rudebjer, Dr. Nighisty Ghezae, Dr. Sebastian Chakeredza. Collaborators: University of Nairobi, RUFORUM, IFS, Bioversity International, African Network for Agriculture, IRDCAM- (Benin), PGRRI (Ghana), University of Malawi. (2009-2013)

23. Management of the African white rice stem borer, *Maliarpha separata* ragonot (*Lepidoptera: pyralidae*) in Kenya. Funded by National Council for Science and Technology. Investigators: Vincent M. Kega, Prof. J. Nderitu and Prof. F. Olubayo. (2010-2012).
24. Role of hormonal cross talk and signaling in the postharvest physiology of lisianthus cut flowers. Funded by National Council for Science and Technology. Investigators: Nicodemus N. Musembi, Prof. K. Waithaka, Dr. M. Hutchinson. (2010-2012).
25. Abundance, genetic diversity and nodulation efficiency of cowpea (*Vigna unguiculata* L.) rhizobia in South Western Kenya soils. Funded by National Council for Science and Technology. Investigators: Jonah Ngeno, Dr. G. N. Chemining'wa, Prof. S. Shibairo. (2011-2013)
26. Enhancing productivity of maize – cowpea intercropping systems in coastal lowland Kenya through drought resilient varieties and improved water and nutrient management. Funded by National Council for Science and Technology. Investigators: James Ndiso, Dr. G. N. Chemining'wa, Prof. F. Olubayo. (2011-2013)
27. Selection for Pod quality and multiple disease resistance in bush and climbing snap beans. Funded by RUFORUM, Collaborators Prof. P. M. Kimani (PI) Dr. R.D. Narla, Dr. G. Chemining'wa, Dr. J. Muthomi, and Prof. J. H. Nderitu. Collaborators; University of Nairobi, KARI. (2012-2014)
28. Improving profitability of the mango value chain through strategies for off-season flower induction, proper harvest scheduling and appropriate postharvest handling practices and technologies. Funded by RUFORUM Investigators: Dr. J. Ambuko Prof. S. Shibairo Dr. M. Hutchinson. Collaborators; JKUAT, University of Nairobi (2012-2014)
29. Cassava post-harvest value addition for improved food and nutrition security and better livelihoods in Kenya. Funded by East African Agricultural Productivity Project. Investigators; Prof. S. Shibairo, Prof. Okoth, Dr. G. Ooko, Mr. Lamuka Collaborators; KARI, Egerton, University of Nairobi. (2012-2015)
30. Enhancing cassava productivity through molecular breeding for resistance to cassava mosaic disease and cassava brown disease, Funded by East African Agricultural Productivity Project, Investigators: Dr. W. M. Muiro Dr. D. W. Miano. Collaborators University of Nairobi, Kenyatta University and KARI. (2012-2015)
31. Promotion of Snap Bean Integrated Crop Management Technologies for Improved Livelihoods in Eastern & Central Africa. Funded by ASARECA. Investigator: Dr. G. Chemining'wa. University of Nairobi, National Crops Resources Research Institute (NaCRRRI), Selian Agricultural Research Institute (SARI) and Mt Kenya University. (Dec 2012-Oct 2013)
32. Validation of Multiple disease Resistant Snap Bean Varieties for Local and Export Markets. Funded by ASARECA. Investigators: Prof. P. M. Kimani, Dr. R. Narla. Collaborators National Crops Resources Institute (Uganda), Rwanda Agricultural Board (Rwanda), Kenya Plant Health Inspectorate Services and University of Nairobi, (Dec 2012-Oct 2013).
33. Innovation systems, agricultural growth and rural livelihoods in East Africa, Funded by DFID-ESRC Growth Programme. Investigators: Prof. Chris Garforth, Dr. Peter Dorward and Dr. Sarah Cardey (University of Reading-leading team) Prof. Florence Olubayo and Dr. Rose Nyikal (University of Nairobi collaborators). Collaborators: Makerere University (Uganda), Ahfad University for Women (Sudan) and University of Kiel (Germany). (June 2012-July 2014).
34. Post-harvest Management Training Project. Investigators: University of Sydney, Prof. Florence Olubayo (Coordinator-University of Nairobi). Collaborators; University of Stellenbosch (South Africa) and Kwame Nkrumah University of Science and Technology (Ghana) Prof. Robyn McConchie (PI). (June 2012-December 2013)
35. Enhancing Food, Nutrition Security and Incomes among Smallholder Farmers Through Production and Value-Addition of Indigenous Vegetables. Prof. A.W. Mwang'ombe (PI), Dr. Margaret Hutchinson (Coordinator), Other Investigators: Dr. Jane Ambuko, Dr. J.J. Okello. Collaborators: KARI Mtwapa and Coast Development Authority. 2011-2014
36. Promoting and Advocating for Implementation of Article 43(1) (C) on Food Security. Investigators: Dr. M.J. Hutchinson (PI) and Prof. Wanjiku Kabira (African Women Studies Centre, UON). Funded by SUNY-KENYA (2011-2012)
37. Advocating for The Right to Food Security: Actualization of Article 43(1)c of the Kenyan Constitution. Dr. M.J. Hutchinson (PI), Drs Gerishon Ikiara (CO-PI), Prof. Tabitha Kiriti-Nganga (CO-PI), Dr. M.L. Mbithi (CO-PI) and Prof. Wanjiku Kabira (Coordinator). Funded by the Government of Kenya. July 2012-June 2013
38. Harnessing Genomics of Edible African *Solanaceae* Plants for Improved Nutritional and Food Security. Partnerships for Enhanced Engagement in Research (PEER) Science funded by USAID-NSF (2013 – 2015). Partners: Dr. Willis Owino JKUAT (PI), Dr. Jane Ambuko (Co-PI, UON) and James Giovannoni (Co-PI, Cornell University).
39. Diversifying Food Systems: Horticultural Innovations and Learning for Improved Nutrition and Livelihood in East Africa (HORTINLEA) – (2013 – 2015). Collaborative project between German and East African Universities/Research Institutions. Dr. Jane Ambuko (Partner/PI, University of Nairobi)
40. Minimizing Postharvest Losses among Mango Farmers through Training on Good Harvest and Postharvest Handling Practices. Trellis Fund Student Capacity Building Project supported by Horticulture CRSP and USAID. University of Nairobi in collaboration with University of California, UC Davis, USA (2013-2014). Jane Ambuko (PI), Dr. Margaret Hutchinson and Msc Horticulture Students (Nancy Kemunto, Lilian Ouma and Penina Yumbya).
41. Genetic Characterization of Eastern and Southern African *Cleome gynandra* (Spider Plant) species for nutritional and health promoting bioactive compounds. Co-funded by Kenya Government through National Council for Science and

- Technology (NCST) and South African Government through National Research Foundation (NRF) – (2013 – 2014). Dr. Jane Ambuko (Kenyan PI, UON) and Dr. Bridget Crampton (South African PI, University of Pretoria)
42. Improving profitability of the mango value chain through strategies for off-season flower induction, proper harvest scheduling and appropriate postharvest handling practises and technologies. Funded by Regional Universities Forum (RUFORUM) – (2012-2014). Jane Ambuko (PI), Dr. Margaret Hutchinson, Prof. Solomon Shibairo, Dr. Willis Owino (JKUAT) and Mr. Joseph Njuguna (KARI)
 43. Improving incomes for smallholder farmers and other value chain actors through enhanced productivity, post harvest handling technologies, value addition and marketing of mango and passion fruit products. Funded by the Kenya Government through the Kenya Agricultural Productivity and Agribusiness Project (KAPAP). Mr. Joseph Njuguna (PI – KARI), Dr. Jane Ambuko (UON Partner), Dr. Willis Owino (JKUAT Partner), Dr. Maina Mwangi (KU Partner), Private Sector Processors
 44. Promotion of Greenhouse Farming for Food Security and Wealth Creation in Western Kenya. Funded by the Kenya Government through National Council for Science and Technology (NCST) – (2012 – 2014). Prof. Mabel Imbuga (PI – JKUAT), Dr. Jane Ambuko (Partner, UON) Frida Marete (Partner, Agro-tunnel International)
 45. Supporting investments in up scaling of grain legumes in western Kenya through assessing and modeling the threat of biotic stressors”. Funded by the McKnight Foundation. Dr. Mathew Abang (CIAT), Dr. J. W. Muthomi, Dr. Ogecha (KARI), Dr. Hassan Were (Masinde Muliro University of Science and Technology), Dr. J. M. Wagacha, MacDonald Wesonga (ARDAP).September 2012 to February 2014.
 46. Integrated management of Banana *Xanthomonas* Wilt (*Xanthomonas campestris* pv. *musacearum*) in Kenya through cultural and host resistance. Funded by the National Council for Science and Technology (NCST) for PhD training of Mr. Johnson K. Kwach. October 2011 to September 2014.
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COLLABORATIONS WITH OTHER INSTITUTIONS

- University of Nairobi, Department of Plant Science and Crop Protection and University of Stellenbosch(South Africa) and Kwame Nkrumah University of Science and Technology (Ghana)
- University of Nairobi, Department of Plant Science and Makerere University(Uganda), Ahfad University for Women (Sudan) and University of Kiel (Germany)
- University of Nairobi and), Kenya Plant Health Inspectorate Services (KEPHIS)
- University of Nairobi and Kenya Agricultural Research Institutions (KARI)
- University of Nairobi, RUFORUM, IFS, Bioversity International, African Network for Agriculture, IRDCAM-(Benin), PGRRI (Ghana), University of Malawi
- University of Nairobi, KARI, Egerton University, Cornell University, Food Supply Organization (REFSO)
- University of Nairobi, KARI, Kenyatta University, Kamurugu/RIDA, KEFRI, Kamumo Products, JKUAT, KENFAP

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Papers Presented at Workshops/Conferences

(a) Annual JEPAK Conference at Panafric Hotel, Nairobi, 22nd November 2012.

Ratemo W. Michieka, The boy child vs the girl child: is the reality dawning

(b) All Africa Horticultural Congress (AAHC), Skukuza, South Africa 15-20th January, 2012.

Ambuko, J., R.W. Githiga, M.J. Hutchinson, H. Gemma and W.O. Owino. 2012. Effect of maturity stage and variety on the efficacy of 1-MCP treatments in Mango fruits

(c) International Conference on Youth in Africa. Book of Abstracts Page 8.

Githiga, R., Ambuko, J., Hutchinson, M.J., Shibairo, S.I. and Owino, W.O. 2012. Effect of Stage of Maturity on the Efficacy of 1-MCP in Tommy Atkins Mango Fruits.

(d) 3rd RUFORUM Biennial conference, Imperial Resort Beach Hotel, Entebbe Uganda, 24th to 28th September 2012.

2. Kimani, P.M., Narla, R.D., Chemining'wa, G., Muthomi, J. and Nderitu, J.H. Selection for pod quality, multiple disease resistance and photoperiod insensitivity in bush and climbing snap beans.
3. P.M. Kimani, R.D. Narla, S. Wahome, G. Chemining'wa, J. Muthomi, and J. H. Nderitu. Variation For Multiple Disease Resistance And Pod Traits In Early Generation Snap Bean Population Bulks.
4. Nzuve F.M., Bhavani, S., Tusiime, G., Njau, N. 2012. Field screening of bread wheat for partial resistance to stem rust. Third RUFORUM Biennial Regional Conference held from the 24th - 28th September 2012, Entebbe, Uganda. Partnerships and Networking for Strengthening Agricultural Innovation and Higher Education in Africa.
5. S. Munialo, L.S.M. Akundabweni.: Investigating viability of Premium Influenced Land Use Structure in production of quality indigenous vegetable
6. Ambuko, Jane, Willis Owino, Solomon Shibairo, Margaret Hutchinson and Joseph Kori Njuguna. 2012. Improving profitability of the Mango Value chain through Strategies for off-season flower induction, reliable maturity indices and applicable postharvest handling technologies. Project Poster presented at the 3rd RUFORUM Biennial Regional Conference. Imperial Resort Beach Hotel- Entebbe, Uganda.. WON BEST POSTER AWARD.

(e) The 13th KARI biennial conference held 22nd to 26th October 2012 at KARI Headquarters Complex, Kaptagat Road, Loresho, Nairobi

9. R. W. Weru, J. W. Muthomi, G. N. Chemining'wa and E. W. Mutitu. 2012. Resistance of maize varieties to infection by *Aspergillus flavus* and aflatoxin accumulation.
10. F. K. Tom, J. W. Muthomi, F. M. Olubayo and G. N. Chemining'wa. 2012. Susceptibility of locally grown maize varieties to infestation by maize weevil (*Sitophilus zeamais Motsch*)
11. Mureithi, B. K., Muthomi, J. W., Chemining'wa, G. N. and Mutitu, E. W. 2012. Identification of predisposing factors to aflatoxin contamination of maize value chain in eastern Kenya.
12. Kwach J. K., Onyango M. A., Muthomi J. W., and Nderitu J. H. Baseline survey for status of Banana Xanthomonas Wilt in Kenya
13. Nzesya J.M., Kimenju, J.W., Muiru, W.M., Gichuru, E.K., Mutua, G.K. and Wachira, P. M. Reaction of coffee germplasm to root-knot (*Meloidogyne* spp.) nematodes
14. Ogecha J., Nderitu J. H., Ariga S. E. and Olubayo F. Effect of soil fertility amendments with nitrogen, phosphorus and farmyard manure on crop nutrient contents, bean stem maggot infestation and yield of common beans (*Phaseolus vulgaris*(L.) in western Kenya
15. Okati S. J. K., Wangia S. S. M, Mbugua P., Kimenju J. W., Mutiga, Kinama J., Ojoo R., Ndutu J., Mongare P. Impacts of climate variability on the livestock based livelihood in Enkaroni Location of Kajiado District.
16. Kega V. M., Nderitu J. H., Olubayo F. and Kasina M. Assessment of yield loss due to *Maliarpha separatella* Ragonot (Lepidoptera: pyralidae) on rice at Mwea Irrigation Scheme, Kenya.
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17. Miano D. W., Obiero H. M., Gichuki S. T., Munga T., Halsey M, Taylor N. and Fauquet C. 2012. Development of transgenic farmer preferred cassava with resistance to cassava mosaic disease in Kenya. 13th Biennial Scientific Conference held on 22nd – 26th October 2012, at KARI Headquarters, Nairobi, Kenya
18. Muthamia J. G. N., Kimani P., Esilaba A. and Chemining'wa G. A review of phosphorus nutrition in bean plant.

(f) HAK Workshop on sustainable horticultural production in the tropics, Bondo University College (BUC), Kisumu, 4th to 7th December 2012.

19. Kihara S.N., Muthomi J.W., Okoth S., Wamae L.W., Kangethe E.K. And Hannu J.K. Occurrence of fumonisin contaminated maize in Makueni county, Kenya.
20. Wachira P.M., Kimenju J.W., Kiarie J.W. and Mwaniki S.W., Diversity of nematode destroying fungi in banana based farming systems in Maragua, Kenya.
2. Mutembei M. Kimenju W.J. and Narla R.D. Agronomic practices, postharvest challenges and handling of avocado in three districts of Central Kenya.
3. Yumbya P, Ambuko J., Shibairo S.I. and Owino W.O. Effect of Activebag packaging on the shelf life and postharvest quality of purple passion fruit (*Passiflora edulis sims*).
4. Kemunto O.N., Ambuko J., Hutchinson M.J. and Owino W.O. Effect of concentrations of 1-methylcyclopropene on the postharvest characteristics of "apple" mango (*Mangifera indica* L.) fruits harvested at different maturity stages.
5. Maina J.G., Ambuko J., Lopokoiyot M.C. and Chemining'wa G.N. Evaluation of teaching methods used by lecturers in faculties of agriculture at Nairobi and Egerton Universities in Kenya.
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7. Baraza A. Ambuko J and Owino W.O. The effect of agro ecological zone on the post harvest quality and shelf life of purple passion fruits (*Passiflora edulis* simis).

(g) Abstract submitted to BGRI technical workshop at Beijing, China

F. Nzuve, S. Bhavani and P. Njau.2012. Genetic analysis of resistance to stem rust in five bread wheat lines. Borlaug Global Rust Initiative; globalrust.org; Proceedings, BGRI 2012 Technical Workshop, September 1-4, Beijing, China. ISBN: pp. 163. 13: 978-0-615-70429-6

WORKSHOPS AND CONFERENCES

1. Kimani, P. M. Bean Consortium Planning and Review Meeting, Addis Ababa, Ethiopia, July 2012.
2. NEPAD – FARA Workshop: Towards formation of CAADP Country Core Education. (3C Edu) Groups, World Bank Offices, Nairobi Kenya. July 29-30th, 2012
3. Nzuve, F. M. AWARD Women's leadership and management course workshop, Indian Ocean Beach Club, Diani, Mombasa Kenya, 19th to 25th August 2012.
4. Olubayo, F. O. Participated as judge at the 1st National Science and Technology and innovation week, at KICC, Nairobi 7th –11th May 2012,.
5. Olubayo, F. O. Participated as judge at the African forum on Science, Technology and innovation for youth empowerment, human capital development and inclusive growth. 30th April to 2nd May 2012.
6. Miano, D. W., SCIFODE meeting, Kampala, Uganda, 18th to 21st July 2012.
7. Olubayo, F. O. Workshop to review the innovation grant applications under the National Council for Science and Technology at KCB, Karen, 16th –17th August 2012.
8. Olubayo, F. O. Workshop to review the women scientists research grant applications under the National Council for Science and Technology at Utali Hotel, 11th to 14th September 2012.
9. Chemining'wa G. N. and Njoroge, K., Rice Research Planning Meeting, Trakya Agricultural Research Institute (TARI), Edirne, Turkey 16th to 20th September 2012.
10. Shibairo, S.I., Akundabweni, L., Chemining'wa, G.N., Ambuko, J. L., Nzuve Felistas and Kimani, P. M.. 3rd RUFORUM Biennial conference, Imperial Resort Beach Hotel, Entebbe Uganda, 24th to 28th September 2012.
11. Mwang'ombe, A. W., Olubayo, F.O., Cherono, R., African Green Revolution Forum, Arusha, Tanzania, 24th to 29th September 2012.
12. Ambuko, J. L. Training in AUDRC in Arusha, Tanzania, 6th October to 13th October 2012.
13. Akundabweni, L.S., Workshop to present the draft final pre-feasibility report on irrigation development and watershed management in the Lake Victoria Basin, Mwanza, Tanzania, 11th to 12th October 2012.
14. Akundabweni, L.S., Workshop to for CRSP-East Africa targeted Investment for research (EATIRI) Programme, 15th to 17th October 2012.
15. Hutchinson M. J., Conduct Leadership Training for ASARECA Managers, Kigali, Rwanda, 15th to 19th October 2012.
16. Miano, D.W., VIRCA-II Steering Committee meeting, Donald Danforth Plant Science Centre in St. Louis, Missouri, USA, 20th to 30th October 2012.
17. Olubayo, F. O., 13th KARI Biennial conference, 2012 participated as paper reviewer and judge during the conference. 22nd to 26th October 2012.
18. Miano, D.W., ATPS Annual Conference and Workshop/Annual General Meeting, Addis Ababa, Ethiopia, 19th to 21st November 2012.
19. Chemining'wa, G. N., FP7 Training under BIOCIRCLE in Accra, Ghana, 22nd to 23rd October 2012.
20. Chemining'wa, G. N., Ambuko, J. L., Onyango, C. M., Kimani, P. M. Workshop for Development of full ASARECA proposal for the Staple crops project in Mukono, Uganda, 29th October to 2nd November 2011.
21. Njoroge, K. Workshop on EU-AV Cooperation in Arusha, Tanzania, 24th to 27th October 2012.
22. Miano, D.W., Expert working group meeting to draft document describing biology of cassava in Serena Lake Victoria Hotel, Entebbe, Uganda, on 26th to 27th November 2012.
23. Chemining'wa, G. N., Stakeholder curriculum review workshop Egerton University.
24. Ambuko, J. W. (with the followind students Ouma L., Kemunto N. O, Yumbya P.) HAK Workshop on sustainable horticultural production in the tropics, Bondo University College (BUC), Kisumu, 4th to 7th December 2012.
25. Shibairo, S. I., Accreditation of Terra Nova in Somaliland, 18th December to 21st December 2012.

26. Kimani, P. M., Proposal writing with Kilimo Trust, Kampala, Uganda, 9th January to 10th January 2012.
27. Kimani, P. M., Bionnoviate Bean Technology Annual Review Meeting, Rwanda, 20th January to 23rd January 2013.
28. Kimani, P. M., Bionnovate Conference, Addis Ababa, Ethiopia, 25th January to 27th January 2013.
29. Miano, D. W., 12th International Symposium on Plant Virus Epidemiology, Arusha Tanzania, 27th January to 1st February 2013.
30. Ambuko, J. L., Stakeholder Workshop on the Code of Conduct and Ethics for Agricultural Professionals at KARI (Mtwapa) in Mombasa, 6th January to 9th January 2013
31. Ambuko J.L. AWARD fellows mentoring orientation workshop at Safari Park Hotel, Nairobi, 17th February to 23rd February 2013.
32. Ambuko, J.L., Hutchinson, M.J., Olubayo, F. KAPAP – Vegetable Value Chain – Planning workshop.
33. Onyango, C.M. Transformative Education, Research and Engagement for Dryland and Sustainability-Preparing the next generation
34. Miano, D.W. VIRCA-II Steering Committee Meeting, Donald Danforth Plant Science Center, St. Louis, MO, 24th-25th October, 2012.
35. Muthomi, J. W. The 2012 Borlaug Dialogue World Food Prize International symposium, 16th -19th October 2012, Des Moines, Iowa, USA.
36. Muthomi, J. W. 4thAnnual Regional Conference for the East & Horn of Africa Community of Practice (E/HAfCoP). April 30 - May 4, 2012 in Kampala, Uganda
37. Muthomi, J. W. Sanitary and phytosanitary systems and agricultural education training. 15th August to 6th December 2012 at the University of Missouri-Columbia, USA. Course funded and organized by the Foreign Agricultural Service of the United States Department of Agriculture.
38. Muthomi, J. W. Professionalism and Ethics in agricultural sciences. 20th August to 6th December 2012, University of Missouri-Columbia, USA.
39. Muthomi, J. W. Sanitary-phytosanitary and pest risk analysis training. 26th November to 1st December 2012 at the Centre for Regulatory Research LLC, USA.
40. Muthomi, J. W. Mycotoxins in foods. 7th September to 4th December 2012 at the University of Missouri-Columbia, USA.
41. Muthomi, J. W. Curriculum development. 28th September to 2nd December 2012 at the Centre for Collaboration and Development of Educational Innovations, University of Missouri-Columbia, USA
42. Muthomi, J. W. The 2012 Borlaug Dialogue World Food Prize International symposium, 16th -19th October 2012, Des Moines, Iowa, USA.
43. Muthomi, J. W. 4thAnnual Regional Conference for the East & Horn of Africa Community of Practice (E/HAfCoP). April 30 - May 4, 2012 in Kampala, Uganda
44. Muthomi, J. W. Sanitary and phytosanitary systems and agricultural education training. 15th August to 6th December 2012 at the University of Missouri-Columbia, USA. Course funded and organized by the Foreign Agricultural Service of the United States Department of Agriculture.
45. Muthomi, J. W. Professionalism and Ethics in agricultural sciences. 20th August to 6th December 2012, University of Missouri-Columbia, USA.
46. Muthomi, J. W. Sanitary-phytosanitary and pest risk analysis training. 26th November to 1st December 2012 at the Centre for Regulatory Research LLC, USA.
47. Muthomi, J. W. Mycotoxins in foods. 7th September to 4th December 2012 at the University of Missouri-Columbia, USA.
48. Muthomi, J. W. Curriculum development. 28th September to 2nd December 2012 at the Centre for Collaboration and Development of Educational Innovations, University of Missouri-Columbia, USA
49. Onyango, C.M. Write-up workshop for development of full ASARECA proposal for the staple crops project on “validation of new disease resistant snap beans lines for adaptability, 29th October to 2nd November 2012., Mukono, Uganda.
50. Michieka R., The first international conference on pesticidal plants. Egerton University. 21st –24th January, 2013.
51. Njoroge K. Business Plan 2013-2018 of the Beca-ILRI Hub workshop from 10th-11th March 2013 at Dar-salaam, Tanzania, sponsored by ILRI/Sygenta Foundation.
52. Kimani P.M. Automated Monitoring Evaluation and Reporting (MER) System Workshop, in Entebbe, Uganda from 1st to 3rd April, 2013.
53. Kimani, P.M. ISSD International Workshop in Kumasi, Ghana, from 8th to 10th April, 2013.
54. Chemining'wa G.N., Kimani, P. M., Narla, R. D., Onyango, C.M The Inception Workshop of the ASARECA sponsored Snapbean breeding and integrated crop management projects, All Africa Conference of Churches – Bishop Desmond Tutu Centre, Nairobi, Kenya. 22nd to 23rd April 2013.

55. Chemining'wa G.N., Narla, R. D. The Regional workshop on Synthesis of Snap Bean Technologies, Validation Protocols, M&E, Capacity Building Needs and Communication and Management Strategy for the ASARECA sponsored Snapbean Integrated Crop Management Project, All Africa Conference of Churches – Bishop Desmond Tutu Centre, Nairobi, Kenya. 24th to 26th April 2013.
56. Onyango, C.M. Building resilience through best practices in livelihood and food security in ASALs of Kenya. University Faculty Workshop, FAO/IIRR, 23rd to 26th April, 2013. Lukenya Gateway, Kenya.
57. Kilalo D., Plantwise (PW) Strategic Plan Finalization, meeting 23rd to 24th May 2013.
58. Onyango, C.M. Transformative Education, Research and Engagement for Dryland Resilience and Sustainability- Preparing the next generation for sustainability. 1st student led Conference, 29th to 30th May 2013. University of Nairobi, College of Agriculture and Veterinary Sciences, Nairobi, Kenya.
59. Michieka R. W. International Meeting of African Science Academies, (Sponsored by Rockefeller Foundation), Ballagio Centre, Italy, 3rd June to 7th June 2013.
60. Hutchinson, M., Follow-up meeting with ASARECA Trainees in Ethiopia. 23rd to 29th June 2013
61. Miano, D. VIRCA Project Biosafety Regulatory meeting. Protea Hotel, Kampala, Uganda. 27th June 2013.
62. Ambuko, J. Science Writing Skills Course 2 at Speke Resort, Uganda. 26th June to 2nd July 2013.

Postgraduate Students graduation: Students who graduated in 2012-

MSc Crop Protection

	Name	Registration no	Title of Thesis	Supervisors
1	Ita Boniface Nyaga	A56/76332/2009	Assessing the effectiveness and benefits of conventional and minimum tillage on weed management in Maize (<i>Zea mays</i> L.)	Prof. R. Michieka Dr. E. Ariga Dr. M. Muiru
2	Koech Ann. Cheron	A56/76432/2009	Evaluation of Biopesticides and harvesting periods for management of potato tuber moth (<i>Phthorimeaeopercullella</i>) Zeller on Potato (<i>Solanum tuberosum</i>)	Prof. F. Olubayo Prof. J. Nderitu Mrs. D. Kilalo
3	Were S. Aringo	A56/76912/2009	Occurrence of Potato Tuber Moth (Spp. Opercullella) and screening for tolerance in popularly grown varieties in Kenya	Prof. F. Olubayo Prof. J. Nderitu Dr. D. Kabita Mrs. D. Kilalo
4	Weru Rose Wamaita	A56/72737/2008	Tolerance of maize varieties to infection by aspergillus flavus and its management by use of antagonistic microorganisms	Dr. J. Muthomi Dr. G. Chemining'wa Prof. E. Mutitu
5	Ngure Kimani	A56/P/8501/2003	The occurrence and intergrated management of cassava brown streak disease in coastal Kenya	Prof. D. Mukunya Dr. R. Muinga
6	Nzesya Jane K. Maundu	A56/1042/2009	Plant Parasitic Associated With Coffee In Kenya, Germplasm Response And Effect Of Nutrition On Tolerance To Nematode Damage"	Prof. J. Kimenju Dr. M. Muiru Dr. E. Gichuru

MSc Agricultural Resource Management

7	Kamanu J. Kariuki	A56/76185/2009	Effect of Inorganic fertilizer application regimes and rhizobium inoculation on growth, yield and quality of snap bean (<i>Phaseolus vulgaris</i> L.) varieties in Central Kenya.	Dr. G. Cheminingwa Prof. J. Nderitu Dr. J. Ambuko
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MSc Plant Breeding and Biotechnology

8	Kimani Wilson	A56/72263/2008	Transferring drought tolerance of the stay-green trait in sorghum from E36-1 an Ethiopian line into ochuti, a farmer preferred Kenyan variety	Dr. Ngugi Prof. E. Mutitu Dr. D. Kiambi
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MSc Plant Breeding and Biotechnology

9	Kaloki Peter Kioko	A56/72086/2008	Genetic variability and heritability of chickpea (<i>Cicer arietinum</i> L.)	Dr. E. Ngugi Dr. S. Silim Dr. M. Mburu
10	Bigirimana Joseph	A56/77624/2009	Characterization of resistance to coffee leaf rust and coffee berry disease among Rwandese and associated coffee germplasm	Dr. K. Njoroge Dr. J. Muthomi Dr. D. Gahakwa Dr. Noah A. Phiri Dr. E.K. Gichuru
11	Niyibigira Theogene	A56/7890/2009	Transferring of <i>Striga</i> Resistance QTLs from a Resistant Donor Source into Adapted Sorghum variety in Rwandan adapted sorghum variety	Dr. Ngugi Prof. E. Mutitu Dr. D. Kiambi

MSc Horticulture

12	Githiga W. Ruth	A56/77181/2009	Effect of 1-Methylcyclopropene and Activebag® Packaging on the Postharvest characteristics of fruits	Dr. J. L. Ambuko Dr. M. J. Hutchinson Dr. W. O. Owino
13	Yumba P. Mueni	A56/64875/2010	Agro-ecological conditions affecting the postharvest quality of passion fruits and their response to postharvest treatment.	Dr. J. Ambuko Prof. S. Shibairo Dr. W. Owino

MSc Plant Pathology

14	Kigamwa Joseph Ngilu	A56/7356/1994	Cultural studies and assessment of seedborne inoculums of <i>Phyricularia grisea</i> (anamorph Magnaporthe grisea) on and in finger millet seed and its implication on blast incidence and severity.	Prof. A. Mwang'ombe Prof. Mibey
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MSc Plant Breeding

15	Samuel Wanjohi Wahome		Selection for multiple disease resistance and marketable pod characteristics in snap bean genotypes	Prof. P. M. Kimani Dr. J. W. Muthomi Dr. R.D. Narla
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PhD

	Name	Registration no	Program	Title of Thesis	Supervisors
1	Karaya Githu Haron	A80/80099/2008	PhD Plant Breeding and Genetics	Identification and Characterization of New Sources of Resistance to <i>Striga Hermonthica</i> among diverse maize germplasm.	Dr. K. Njoroge Dr. S. Ariga Prof. J. Nderitu
2	Kilao C. Dora	A80/80464/2010	PhD Entomology	Molecular Detection of Viruses Associated with Passion Fruit (<i>Passiflora edulis</i>) woodiness disease, Monitoring and Management of Aphid Vectors in Kenya.	Prof. F. Olubayo Prof. J. Kimenju Dr. M. Hutchinson Dr. E. Ateka

EXTERNAL EXAMINERS 2011/2012

Faculty of Agriculture: EXTERNAL EXAMINERS

	EXTERNAL EXAMINER	DEPARTMENT	INSTITUTION
1	Prof. Stephen M. Githiri	Plant Science and Crop Protection	JKUAT
2	Dr. Isaiah M. Tabu	Plant Science and Crop Protection	Egerton University
3	Dr. Gohole Linnet Serenge	Plant Science and Crop Protection	Moi University
4	Prof. Ezekiel Kiprop	Plant Science and Crop Protection	Moi University
5	Dr. Edward Gachangi Njenga	Plant Science and Crop Protection	Kenyatta University

Teaching and Research facilities acquired within the reporting period

1. 4 Laptops for MSc Students-RUFORUM projects
2. 1 Fridge
3. 1 Freezer

Department of Land Resource Management and Agricultural Technology (LARMAT)

The Department of Land Resource Management and Agricultural Technology (LARMAT) through training, research and community service, aims at enhancing sustainable natural resource management and development of technologies suitable for sustainable livelihoods, and informing policy. The department offers both undergraduate and postgraduate programmes in soil, water, range, agroforestry and environmental management. The department also offers consultancy and advisory services in soil survey, soil fertility and water management, land use planning, and bio-fertilizer production among others. The Department hosts the Center for sustainable Dryland Ecosystems and Societies (CSDS) and the regional Micro-Biology Resource Centre (MIRCEN)



**Prof. Geoffrey Kironchi,
Chairman of the Department**

that offers training in biological nitrogen fixation and inoculant production. In addition, LARMAT has the mandate to manage Kibwezi, Machang'a and Ngong field stations, which have great potential for irrigated agriculture, bee keeping and livestock production

1. LIST OF ACADEMIC PROGRAMMES

Undergraduate Programmes

BSc. Management of Agro-ecosystems & Environment
BSc. Range Management
BSc. Agriculture (Soil Science Major)

Postgraduate Programmes

MSc. Range Management
MSc. Soil Science
MSc. Land and Water Management
MSc. Sustainable Soil Resource Management
MSc. Agroecosystems and Environment
MSc. Agroforestry
PhD in all the above MSc programmes
PhD. Dryland Resource Management

2. STUDENTS ADMITTED INTO EACH ACADEMIC PROGRAMME IN 2012/2013

	Programme	No. Admitted
1.	BSc. Range Management	40
2	BSc. Mgt. of Agro-ecosystems & Environment	35

3	BSc. Agriculture (Soil Science Major)	10
4	MSc. Sustainable Soil Resource Management	6
5	MSc. Range Management	4
6	MSc. Soil Science	1
7	MSc. Land & Water Management	4
8	MSc. Agroecosystems and Environment	1
9	MSc. Agroforestry	1
10	PhD. Dryland Resource Management	8
11	PhD. Soil Science	1
12	PhD. Range Management	1
13	PhD. Sustainable Soil Resource Management	1
	Total	113



Participants of AGRA-funded Capacity Building in Sustainable Soil Resource Management regional MSc training stakeholders workshop held in Nairobi in 2012.



Students Extol the Internship Program

Ten students successfully completed their three months internship program at various organizations where the Centre for Sustainable Dryland Ecosystems and Societies (CSDES) posted them. During an internship evaluation seminar held at

CSDS offices, speaker after speaker praised the program noting that it had significantly made a difference in their academic lives and in understanding dryland management issues. "I have gained experience in the understanding and management of outreach for dryland ecosystems," said Mosiany Peter an intern attached at Dupoto e Maa .

The three month internship program given by CSDS aims at transforming higher education in the Drylands of Kenya. Young graduates are sent as far as Loita, Garissa, Mbeere, Laikipia, Kajiado/Kitengela, Turkana, Taita-Taveta, Tana-River/Isiolo, Kiboko, and Mara.

3. NUMBER OF STUDENTS WHO GRADUATED FROM EACH PROGRAMME IN 2012/2013

	Programme	No. Graduated
1.	BSc. Range Management	9
2	BSc. Mgt. of Agro-ecosystems & Environment	29
3	BSc. Agriculture (Soil Science Major)	4
4	MSc. Range Management	2
5	MSc. Soil Science	1
6	MSc. Sustainable Soil Resource Management	9
7	MSc. Land & Water Management	2
8	PhD. Dryland Resource Management	2
9	PhD. Mgt. of Agro-ecosystems & Environment	1
	PhD. Range Management	1
	Total	63

4. EXTERNAL EXAMINERS - 2012/2013

- Prof. Isaac Kirea Kigatiira
P.O. BOX 56861
Department of Dryland Natural Resource Management
NAIROBI-KENYA
- Prof. Peter Alfred Kamau
Agric. and Natural Resources
Kenya Methodist University
P.O. BOX 45240-00100
NAIROBI-KENYA
- Dr. Nancy Wangari Mungai
Dept. of Crops, Horticulture and Soils
Egerton University
P.O. BOX 536
NJORO-KENYA

5. RESEARCH ACTIVITIES IN THE DEPARTMENT

S.No.	Principle Investigator	Research Title
1.	Dr R. N. Onwonga	Access agriculture (2014) - Videos for farmers' Project - Video-mediated learning in Agriculture (6 months)
2	Dr. G. Kironchi	Strengthening Africa's Strategic Agricultural Capacity for Impact on Development (SASACID) Project - African Network for Agriculture, Agroforestry & Natural Resources Education (ANAFE) (2012-2014)
3		
4		
5	Dr. J. S. Mbau	An analysis of human-wildlife conflicts in the Tsavo West Amboseli Agroecosystem using integrated geospatial approaches. A case study of Taveta District , Southern Kenya



Prof. C.K.K. Gachene (second from right) visiting a conservation tillage field experiment site in Makueni County with KARI scientists. Over the years the Department of LARMAT has put emphasis in collaboration with other institutions to carry out research.

6. PUBLICATIONS

1. Mulebeke, R., G. Kironchi, M. M. Tenywa. 2013. Soil moisture dynamics under different tillage practices in cassava–sorghum based cropping systems in eastern Uganda. *Ecohydrology and Hydrobiology* 13: 22-30.
2. Amondo, E., G. Kironchi and S. Wangia. 2013. Willingness to Pay for Improved Water Supply due to Spring Protection in Emuhaya District, Kenya. *International Journal of Education and Research*, 7: 1-14.
3. Kirina T., R. Onwonga and G. Kironchi. 2013. Modeling Potential Impact of Climate Change in Semiarid Areas: A Simulation of Sorghum and Cowpea Performance using APSIM Model. Lambart Academic. Publishing. ISBN: 978-3-31533-6.
4. Origa, O.L., C.K.K. Gachene, G. Kironchi and R.N. Onwonga. 2012. Effect of Different Supplemental Watering Regimes on Water Use Efficiency and Economic Returns of Onion and Tomato in Kibwezi District, Eastern Kenya. *East Africa Agricultural and Forestry Journal*, 78(2): 89-97.
5. Karuku, G.N., C.K.K. Gachene, N. Karanja, W. Cornelis, H. Verplancke and G. Kironchi. 2012. Soil Hydraulic Properties of a Nitisol in Kabete, Kenya. *Tropical and Subtropical Agroecosystems* 15: 595-609.
6. Zziwa, E., G. Kironchi, C.K. Gachene, S. Mugerwa and, D. Mpairwe. 2012. The dynamics of land use and land cover change in Nakasongola District. *Journal of Biodiversity and Environmental Sciences*. ISSN: 2220-6663 (Print) 2222-3045 (Online) 2 (5): 61-73. <http://www.innspub.net>
7. Nyamwamu, B, J.J. Okello and G. Kironchi. 2012. Drivers of the transition from pastoralism to vegetable farming in Africa's arid and semi arid areas and implications for soil fertility management: The case of Kenyan pastoralists. *African Journal of Agricultural Research* Vol. 7(15), pp. 2273-2282, 19 April, 2012. Online at <http://www.academicjournals.org/AJAR>. DOI: 10.5897/AJAR11.1176. ISSN 1991-637X
8. Kirina T.K., R.N. Onwonga C. Onyango J.P. Mbuvi and G. Kironchi. 2012. Climate change and variability: Farmers' perception, experience and adaptation strategies in Makueni County, Kenya, *Asian Journal of Agriculture and Rural Development*, Vol. 2, No. 3, pp. 411-421.
9. Miriti, J.M, G. Kironchi, A.O. Esilaba, L.K. Heng, C.K.K. Gachene, D.M. Mwangi, 2012. Yield and water use efficiencies of maize and cowpea as affected by tillage and cropping systems in semi-arid Eastern Kenya. *Agricultural Water Management* 115(2012) 148-155.
10. Opiyo, F.E.O., Wasonga, V.O., Schilling, J. and Mureithi, S.M. 2012. Resource-based Conflicts in Drought-prone North-western Kenya: The Drivers and Mitigation Mechanisms. *Wudpecker Journal of Agricultural Research* 1(11): 442 – 453.
11. Verdoodt, A., Moussandek, R., Mureithi, S.M., Vermang, J. and Ye, L. 2013. Opportunities and challenges in assessing and combating land degradation. In: De Boever, M., Khlosi, M., Delbecque, N., De Pue, J., Ryken, N., Verdoodt, A., Cornelis, W., Gabriels, D. (Eds.). (2013). *Desertification and land degradation: processes and mitigation*. Ghent, Belgium: Ghent University. UNESCO Chair of Eremology, pp. 35-42.
12. Mureithi S.M., Verdoodt A, Njoka J.T, Gachene C.K.K, Warinwa F and Van Ranst E. 2013. Impact of land zoning under community natural resource management programme a Kenyan semi-arid rangeland. In *Proceedings: 1st Student-Led Conference organised by the Centre for Sustainable Drylands and Societies (CSDES) of the University of Nairobi*. 29 - 30th May, 2013. Nairobi, KENYA.

13. Mureithi S.M., Verdoodt A, Njoka J.T, Gachene C.K.K, Warinwa F and Van Ranst E. 2013. Impact of community conservation management on a Kenyan semi-arid savannah. In Proceedings: Desertland. Conference on Desertification and Land Degradation. 17 & 18 June, 2013, Gent, BELGIUM. <http://www.desertland.eu/>
14. Mureithi, S.M., Verdoodt, A. Njoka, J.T., Gachene, C.K.K., Meyerhoff, E. and Van Ranst, E. 2012. Direct benefits derived from a rehabilitated semi-arid rangeland in Kenya. In Proceedings Vol. 1: Deforestation, Overgrazing and Desertification ; Land Degradation, Remediation and Reclamation ; Wetland Soils and Climate Change. Ed. S Kapur, MT Esetlili, & F Özen. 2012. 143-148. 8th International Soil Science Congress on "Land Degradation and challenges in Soil Management". May 15-17, 2012. Çeşme-Izmir, TURKEY. www.soilcongress.ege.edu.tr
15. Verdoodt, A., Moussandek, R., Mureithi, S.M., Vermang, J. and Ye, L. 2012. Opportunities and challenges in assessing and combating land degradation. Paper presented in the Fourth Conference on Desertification and Land Degradation. 18-19th June, 2012. Gent, BELGIUM. <http://www.desertland.eu/>
16. Richard N. Onwonga, Joyce J. Lelei and Joseph K. Macharia (2013). Comparative Effects of Soil Amendments on Phosphorus Use and Agronomic Efficiencies of Two Maize Hybrids in Acidic Soils of Molo County, Kenya. *American Journal of Experimental Agriculture* 3(4): 939-958, 2013.
17. Ibrahim Ahmed, Richard N. Onwonga, D. M. Mburu, Yazan A. Elhadi (2013). Evaluation of types and factors influencing adoption of rainwater harvesting techniques in Yatta District, Kenya. *International Journal of Education and Research* Vol. 1 No. 6 June 2013.
18. Egeru Anthony, Wasonga Oliver, Kyagulanyi Joseph, Majaliwa Mwanjalolo, G.J. MacOpiyo Laban, Mburu John, 2014. Spatio-temporal dynamics of forage and land cover changes in Karamoja sub-region, Uganda. *Pastoralism: Research, Policy and Practice*.
19. Mbau J.S. (2013). Land use and land cover changes and their implications for human-wildlife conflicts in the Semi-Arid rangelands of southern Kenya. *Journal of Geography and Regional Planning*, Vol. 6(5): 193-199.
20. Mbau J.S., Nyangito M.M. and Gachene C.K.K. (2013). Land use and land cover change analysis. Linking local communities to land use and land cover changes using Participatory Geographic Information Systems. ISBN No. 978-3-659-36222-4. LAP LAMBERT Academic Publishing, Germany.
21. Mbau J, Nyangito, M.M. and Gachane CK.K. 2013. Land use and land cover changes analysis: Linking local communities to land use and land cover changes using participatory geographic information systems (PGIS). ISBN No. 978-3-659-36222-4. Lap Lambert Academic Publishers.
22. Nyangito, M.M., Nyariki, D.M., Hjort, A., Kassim, O.F. and Musimba, N.K.R. (2012). Analysis of secondary land rights for adaptation to climate driven agropastoral systems of south eastern Kenya. *E. Afr. agric. For. J.* (2012) 78(1):113-118.
23. Ndathi, J.N, Nyangito, M.M., Musimba, N.K.R. and Mitaru, B.N. (2012). Farmers' preference and nutritive value of selected indigenous plant feed materials for cattle in drylands of southeastern Kenya. *Livestock Res for Rural Dev.* 24(2).
24. Chibinga, O.C., Musimba, N.K.R., Nyangito, M.M, Simbaya, J and Daura, M.T. (2012). Climate variability: enhancing adaptive utilization of browse trees for improved livestock production among agro-pastoralists communities in southern Zambia. *Afr. J. of Environ. Sci. and Technol.* Vol. 6(7), pp. 267-274.

7. PARTICIPATION IN CONFERENCES

Dr. G. Kironchi

- The 13th KARI Biennial Scientific Conference and Exhibition of Innovations, KARI Headquarters, Nairobi, October 22-26, 2012. Presented a paper jointly with Miriti, J.M, C.C.K. Gachene and A.O. Esilaba titled: Effects of Water Conservation Tillage on Water Use Efficiency in Maize-Cowpea Cropping Systems in Semi-Arid Eastern Kenya.

Dr. L. MacOpiyo

- International Conference on Climate Change Impacts and Adaptation for Food and Environmental Security, 21-22 Nov. 2012. Held at Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA), UPLB Campus, College, Los Baños, Laguna, Philippines. Presentation: "A System for Monitoring the Effects of Climate on the Flux and Availability of Water Resources in the Drylands of Eastern Africa".

Dr G.N. Karuku

- The 27th Soil Science Society of East Africa and the 6th Africa Soil Science Society Conference at Hotel Cathy, Nakuru County, Kenya October, 21-25, 2013. Theme: Transforming Rural Livelihoods in Africa: How can land and water management contribute to enhanced food security and address climate change adaptation and mitigation?

Prof. S. Keya

- KARI Annual Research Conference held in Nairobi January 2013 and presented a paper on Essential Elements towards the preparation for an External Programme and Management Review of research.

- International Symposium and Exhibition on Agricultural development in the East African Community Partner States - 50 Years of Independence. Kampala Uganda 4 - 8 November 2013. Presented a 30 page Commissioned Paper entitled: "Progress in On-Farm Production and Productivity in the East African Community: 50 Years after Independence"

Dr. Judith Mbau

- Participated in the Tropentag International Conference held September 2012. – Germany.
- Participated in the Student-led conference held at UON – Kabete campus June 2013. Presented a paper on: Linking local communities to land use and land cover changes and their implications for human-wildlife conflicts using PGIS.

Dr. Stephen Mureithi

- National Land Conference on Sustainable Land Management in Dry lands of Kenya: Towards increasing Land Productivity. Organised by Mainstreaming Sustainable Land Management in Agro-Pastoral Production Systems of Kenya Project. 25th – 29th Nov. 2013. Naivasha, KENYA. www.slmkenya.org
- 6th Africa Soil Science Society (ASSS) and the 27th Soil Science Society of East Africa (SSSEA) Conference. Soil is Wealth, Protect it. 21-25th October, 2013. Nakuru, KENYA.
- Desertland: The Fourth Conference on Desertification and Land Degradation. 17-18th June, 2012. Gent, BELGIUM. <http://www.desertland.eu/>
- 1st Student-Led Conference organised by the Centre for Sustainable Drylands and Societies (CSDS), University of Nairobi. 29- 30th May, 2013, Nairobi.

Dr. Richard Onwonga

- The 27th Soil Science Society of East Africa and 6th Africa Soil Science Society Conference October 21-25, 2013 Hotel Cathay, Nakuru, Kenya.
- 8th International Conference and Expo 2014 on 26th-28th March 2014

8. PARTICIPATION IN WORKSHOPS

Dr. G. Kironchi

- DRIVLIC–Kenya Project Final Results' Dissemination Workshop. Effect of Compliance with Food Safety Standards for production of French beans on Soil Quality in Smallholder Farms in Kirinyaga County. KARI headquarters, Nairobi, January 21-23, 2013.
- KAPAP 2nd Research Call Workshop. Research Options for Climate Change Adaptation and Mitigation in Agriculture: The Case of Kenya. Invited Key note presentation. Organized by the KAPAP Secretariat, KWSTI – Naivasha, August 14-15, 2012, Naivasha, Kenya

Dr Stephen Mureithi

- Day of the Young Soil Scientist: 20th Feb. 2013. Organised by The Belgium Society of Soil Science. Brussels, BELGIUM.
- 8th International Soil Science Congress on "Land Degradation and Challenges in Sustainable Soil Management" 15-17th May 2012, Çeşme-Izmir-TURKEY.
- Triple L - Land, Livestock and Livelihood Dynamics in Dryland Systems. 18-20th Nov. 2013. Kitale, KENYA.

Dr Judith Mbau

- Presented in a workshop held in Taveta District Kenya 2013: Integrating local communities into the management of human-wildlife conflicts. The case of Taveta District, Southern Kenya. Presentations papers: (1) Local Community participation in Human-wildlife conflict management; (2) The potential of ecotourism in Human-Wildlife conflict management.

9. SCIENTIFIC VISITS/TRAININGS

Dr. G. Kironchi

- Improved Methods for Agribusiness Learning, organized by Market Matters Inc., Cape Town, South Africa, May 5-10, 2013.

- Results-Based Management (RBM), organized by ANAFE, University of Abdou Moumouni of Niamey, Niger, November 29-December 1, 2012.
- Development of Instructional Content for Open and Distance Learning, organized by the Centre for Open and Distance Learning (CODL), University of Nairobi at KWSTI Naivasha, August 5-11, 2012.

Dr MacOpiyo

- Instructed at the GrassNet Summerschool held between September 24-28,2012 in Witzenhausen, Germany entitled "Modeling approaches to support grassland management"
Gave the following seminars:
 - ✓ Modeling fodder supply by use of spatial data and satellite-based weather monitoring system data.
 - ✓ Modeling the effects of changes in decision making using multi agent models
- Instructed at the "Sustainable Agricultural and Rural Development for Food Security" summer school at SEARCA, Los Baños, Laguna, Philippines between 11th -15th November 2013
Presented a weeklong seminar on *Population, Food, and Governance Issues*

Dr . G. N. Karuku

- Introduction to the use of Nuclear and isotopic techniques in soil, water and nutrient management; at the International Atomic Energy Agency in Vienne International Center, Vienna-Austria from May 12-18, 2013.

Dr Judith Mbau

- Summer School held September 24-28,2012 in Witzenhausen, Germany; presented paper entitled "Modeling approaches to support grassland management" University of Kassel, Germany.

10. THESIS – TITLE & AUTHOR

MSc Theses

S.No	Programme	Title	Author
1	MSc. Soil Science	<i>Effectiveness of Rhizobia Isolates from Kenyan Soils and Commercial Inoculants in Nodulation of Soybeans</i>	Waswa N. Maureen
2	MSc. Land & Water Management	Effect of Compliance with Food Safety Standards for Production of French Beans on Soil Fertility in Smallholder Farms in Kirinyaga County	Mnyambo G. Clarice
3	MSc. Land & Water Management	Effects of Supplemental Irrigation on Growth and Yield of Onions (<i>Allium cepa</i>) and Tomatoes (<i>Solanum lycopersicum</i>) in Semi-arid Eastern Kenya	Origa O. Linus
4	MSc. Range Management	<i>A Comparative Study of the Productivity of Brachiaria Hybrid CV. Mulato 11 and Native Pasture Species in Semi-Arid Rangelands of Kenya</i>	Machogu Clara
5	MSc. Range Management	<i>Pastoral Community Learning on Natural Resource Conservation and Governance: A case of Il Ngwesi Conservancy in Laikipia County Kenya</i>	Komu Henry Mwaka
6	MSc. Sustainable Soil Resource Management	<i>Assessment of Quality Control of Inoculants on Bean and Soybean in Eastern and Central Africa</i>	Mwanga Balume Kayani

7	MSc. Sustainable Soil Resource Management	<i>Soil Fertility Gradients: Effect of Long Term Fertilizer Application on Soil Properties, Striga Density and Maize Yield</i>	Sibusisiwe Kamanaga Caroline
8	MSc. Sustainable Soil Resource Management	<i>Efficacy of Farmers' Soil Fertility Management Practices in the Control of Striga Hermonthica: A Case Study of Smallholder Farmers of Western Kenya</i>	Godfrey Nakitare Nambafu
9	MSc. Sustainable Soil Resource Management	<i>Use of Organic and Inorganic Fertilizers in Maize-Legume Intercrop and Adaptation to Climate Change in Mozambique</i>	Chichogue Oscar Joab
10	MSc. Sustainable Soil Resource Management	<i>Farmers Perceptions, Use and Profitability of Biofix on Soybean (Glycine Mx) Production in Western Kenya</i>	Mutuma Patrick Samuel
11	MSc. Sustainable Soil Resource Management	<i>Effect of Varying Soybean Planting Density on Maize (Zea Mays) and Soybean (Glycine Max) Yields in a Maize – Soybean Intercrop System in Western Kenya</i>	Simbine Margarida Graciete
12	MSc. Sustainable Soil Resource Management	<i>Assessing the Interactions Between Tephrosia Biomass and Inorganic Fertilizer on Soil Chemical Properties and Maize Yield in Malawi</i>	Munthali Maggie Golie”
13	MSc. Sustainable Soil Resource Management	<i>Assessment of Sufficiency Levels of Nitrogen and Phosphorus for Rice Growth and Yield in Paddy Fields of Cyunuzi Lowland, Eastern Rwanda</i>	Uwanyirigira Jeanine
14	MSc. Sustainable Soil Resource Management	<i>Effect of Timing and Methods of Mineral Fertilizer Application on Irish Potato (Solanum tuberosum) Performance in Musanze and Nyaruguru Districts, Rwanda</i>	Turamyenyirijuru Adrien

PhD Theses

	Program	Title	Author
1	PhD (DRM)	<i>An Analysis of Human-Wildlife Conflicts in the Tsavo West – Amboseli Agro-Ecosystem Using Integrated Geospatial Approaches: The Case Study of Taveta District</i>	Mbau Judith Syombua
2	PhD (DRM)	<i>Climate Variability and Adaptation in Agro-Pastoral Production Systems of Southern Zambia</i>	Chibinga Chifungwe Oswin
3	PhD Range Management	<i>The Influence of Climate Variability and Change on Land-use and Livelihoods in the Southern Rangelands of Kenya</i>	Amwata Dorothy Akinyi
4	PhD Management of Agroecosystems & Environment	<i>Evaluating Briquette Technologies and their Implications on Greenhouse Gases and Livelihoods in Kenya</i>	Njenga Mary Mbura

11. KEY VISITORS TO THE DEPARTMENT

- Brett L. Bruyere - Colorado State University
- Prem Warrior – Bil & Melinda Gates Foundation

- John Honieson – Perth University Australia
- Rita Boery – IDRC , Ohawa Canada
- Ced Hesse – IIED, Edinburgh, UK
- Dr. Moses Pulei – World Vision, East Africa Region
- Jie Zhang – University of Kassel, Germany

12. OUTREACH AND COMMUNITY SERVICE

- Tree planting
- Secondary School students mentorship



Members of the Loita Cultural Community Centre pose for a photograph with the CSDDES after a partnership meeting between the two Centres.

13. LINKAGES ESTABLISHED OR CONTINUED

- Link between the Department of LARMAT and MEA Ltd to market Biofix
- African Network for Agriculture, Agroforestry & Natural Resources Education (ANAFE)
- AGRA funded regional MSc training in Department of LARMAT (2011-2013): Capacity Building in Sustainable Soil Resource Management
- RUFORUM funded regional PhD training for 3 PhD students in Department of LARMAT: Capacity Building in Dryland Resources Management.
- Centre for Sustainable Dryland Ecosystems and Societies (CSDDES), a partnership with Colorado State University(CSU).

17. MAJOR ACTIVITIES HELD BY STUDENTS' ORGANIZATIONS

TREE PLANTING/ENVIRONMENTAL CONSERVATION

This is a summary for CAVS students, staff and partnering institutions tree planting activities

Date	Area	Number of tree seedling planted
October-November 2012	Vet Farm Kanyariri	7000
	Ngong Field Station	1000
	Kibwezi Field Station	2000
April-May 2013	Vet Farm Kanyariri	10,250
	Ngong Field Station	2000
	Kibwezi Field Station	1000
Total		26,250

A total of 26,250 seedlings, mainly of indigenous species were planted. Of these, 24,250 were planted in the University land, while 2000 were planted in partnership with the Kenya Air Force Environmental Soldier Programme, at Moi Air Base (MAB), Eastleigh. The table below gives the breakdown of the trees planted in the FY 2012/2013.

Table 1. Trees planted in the Financial Year 2012/2013 in partnership with various institutions.

Date	Number of seedlings	Site	Remarks
Short Rains 2012 Season			
November 2, 2012	8,000	Vet Farm, Kanyariri	Main tree planting day
November 17, 2012	2,000	Ngong	
November 23, 2012	2,000	Kibwezi	
Sub-total	12,000	All sites	
Long Rains 2013 Season			
April 17, 2013	1,000	Kibwezi	With Vet. Students Ass. & local community
April 19, 2013	7,950	Vet Farm, Kanyariri	Main tree planting day
May 3, 2013	2,000	Ngong	With KTDA & MAB
May 24, 2013	1,000	Vet Farm, Kanyariri	With KIPPRA
June 28, 2013	3,00	Vet Farm, Kanyariri	UoN Academic Division
April 30, 2013	2000	Moi Airbase	With Kenya Air Force
Sub-total	14,250	All sites	
TOTAL	26,250	All sites	

Types and Sources of Seedlings Planted

The trees targeted for planting are mainly the indigenous species that are well adapted to local conditions, and do not have negative impact on the environment. Most seedlings planted as woodlots at Vet Farm and Ngong comprised of *Prunus africana* (red stinkwood), *Podocarpus gracilior* (podo) and *Vitex keniensis* (Meru oak), *Wamburgia ugandensis*. Other species planted were those suited to mark and secure the boundary of Vet Farm are *Grevillea*, *Jacaranda*, *Nandi flame* and *Markhamia*. In Kibwezi, the seedlings were carefully selected to ensure those planted are the adapted dryland species suitable for the semi-arid environment such as *Acacia* species, *Mellia* and *Olea africana*.

A large proportion of the seedlings were sourced from the University's Ngong Station nursery that is managed by the Department of LARMAT. Among all the partners, KTDA donated the highest number (10,000) seedlings in the two seasons, 8000 of which were planted at Vet Farm and 2000 at Moi Airbase, Eastleigh and surrounding areas.

PHOTO GALLERY



The Principal CAVS, Prof. A.W. Mwang'ombe displays the Total Kenya Limited Eco-Challenge Trophy awarded to University of Nairobi for playing a key role in environmental conservation through tree planting. This was during the Award Gala Night held on Wednesday, June 26, 2013 at the Carnivore Restaurant. Prof. G. Kiama, the Director, Wangari Maathai Institute (left) and Prof. R. Michieka (right) also attended the occasion.



An assortment of indigenous tree seedlings assembled (*above*) ready for planting (*below*) at Ngong on May 3, 2013.



Principal CAVS, Prof. A. Mwang'ombe with students and staff watering a *Podo* seedling she planted at Ngong.



Aware and enthusiastic about this year's CAVS tree planting theme '*Greener Cleaner Environment*', students and staff endured the hot and dry weather in Kibwezi on April 17, 2013 to plant a total of 1000 seedlings. The seedlings were strategically planted just before the on-set of the rains to ensure they fully benefit from the usually very short and erratic rainy season.



The Kenya Defence Forces from Eastleigh Moi Airbase joined the University community and other partners such as KTDA in tree planting on April 19, 2013 at Vet Farm, Kanyariri.



Students out in Kibwezi Dryland Field Station carrying tree seedlings to a planting site. Students from the Department of LARMAT are always in the forefront when it comes to environments matters such as tree planting.

DEPARTMENT OF FIELD STATION

The Field Station continued to execute its teaching, researching and income generating functions during the year. Other important activities included collaborative research and development work carried out in collaboration with other college departments and linkage activities with outsiders. Efforts were made to improve on farm-record.

The Field Station acquired of green-houses from the Monthly Bromide Alternative Project, which was under Prof. E Mutitu and we have successfully planted two crops and are in the process of cropping the second crops mainly capsicum and tomatoes. The farm has also improved in indigenous vegetable production, green maize and other crops.

Coffee Production Unit

Efforts to improve coffee production through better manuring, mulching and improved canopy management has continued with more emphasis in use of organic manure from the livestock unit Animal production and Vet Farm. The general quality of our coffee for early and late crop 2013 improved compared to the crop realized in 2012 with 75 tons of cherry produced. The main objective targeted improving production per tree while also improving the cup-quality.

Horticulture Production Unit

Vegetable production continued to record impressive growth with a widened range of products including capsicums, tomatoes, indigenous vegetables, green maize, beans kales spinach etc. The orchard for macadamia nuts has also realized better sales for the nuts this year.

Livestock Production Unit

a) Dairy Herd

The dairy production has improved tremendously over the last one year. We current have 15 dairy cattle with production range of 10 to 15 litres per day

b) Beef Herd

The beef animals are currently 78 this reduction is as a result of selling through slaughtering; this realizes better profits for the section. There is general improvement in health of the animals.

- c) Beef Steers
Efforts have been made to fatten bull calves bought from Veterinary Farm so as to be sold as beef we currently have 24 bull calves.
- d) Pasture and fodder
Pasture has been planted in various fields over the last one year with variety of pastures and fodder crops to improve ad help in supplementation of the dairy herd. Which are kept under semi zero-grazing.

Poultry Unit

Poultry unit was established in line with the vision 2030 project in the farm. The unit has with over 600 indigenous chicken. The project produces fertilized eggs and breeder cocks. There is a hatchery of 500 egg capacity and a hatchery unit under construction which will be producing a day old chicks. We also collaborate with Animal production department to hatch and sell chicks. Currently we have successfully hatched over 3500 chicks, and sold over 300 breeding cocks. The poultry unit has participated in various exhibitions organized by various Agricultural and Livestock Agencies such as KARI, University of Nairobi and Agricultural shows.

Fish Farm

A fish farm was established in line with vision 2030 project and currently the farm has 20 ponds, stocked with over 45,000 tilapia fish. We are currently constructing smaller ponds for teaching and research. There is a fish processing unit under way. Various training on Fish Farming have been undertaken by members of staff on handling and rearing fish, conducted by the Ministry of Fisheries Development. The Permanent Secretary of Fisheries visited the section on 20th June 2012 during the official launch of the Fish Farming Project. There was training for short courses on poultry farming conducted in 2013, and more training will be done.

Participation in Nairobi International Trade fair.

During 2013 International Trade Fair, the Field Station had an excellent performance winning a total of 125 prizes and 19 trophies in Livestock, Poultry, and Farm Produce. The Farm participated for the first time in indigenous chicken and won several trophies.

The Field Station won the following Prizes:-

First Prize	Second Price	Third Prize
Dhania (coriander)	20. Cauliflower	39. 2 bundles celery
1. Kales (Sukuma wiki)	21. Fruits of egg plant	40. 6 onions – white variety
2. Sweet Potatoes (Red type)	22. Bundles of Dhania	41. One band 12 bananas cooking type
3. Groundnuts	23. 10kg bags of fresh sweet potatoes – white	42. 10kg sweet potatoes – white type
4. Beans (Mwezi Moja)	24. 2 Kgs groundnuts	43. 6 onions – red variety
5. Njahi (Dolichus)	25. 3 bundles of kales (sukuma wiki)	44. 6 fruits – egg plant
6. Celery	26. 5 kg doliches – Njahi	45. 5kg Mwitmania beans
7. Egg Plant	27. 5kg cream cowpeas	46. Credited for small scale farmers.
8. Carrots	28. 3kg macadamia in shell	
9. French Beans (snap beans)	29. 3 beetroots	
10. Spinach	30. 2 bundles of spinach	
11. Broccoli	31. 1 kg of French beans	
12. Cooking bananas	32. 3 bundles of amaranths	
13. Cauliflower	33. 10 bundles of garlic	
14. Amaranths	34. 5kg Mwezi moja beans	
15. Red Onions	35. 6 onion – white variety	
16. Blade Nightshade	36. 3 cabbage – hybrid Gloria	
17. Heavy weight Indigenous Vegetable trio	37. 3 heads of red local cabbage	
18. Best Indigenous vegetable trio	38. One band of 12 bananas – cooking type	
19. Overall Best trio Indigenous chicken trio of the show.		

Pictorial presentation of College of Agriculture and Veterinary Sciences activities:

CAVS in fulfilling one of her core values of nurturing and caring for the environment plants trees twice per year at the farms under the College mandate and care. These include upper Kabete campus, Kanyariri Veterinary Farm, Ngong forest and Kibwezi field station. CAVS does proactively engage with neighboring communities and other stakeholders in tree planting.



CAVS staff and students having fun as they prepare to plant seedlings in November 2013 at Kanyariri Veterinary Farm.



Indeed tree planting function is too good to miss and here as CAVS gets down to the really action of planting trees the Principal share a light moment with students and staff during the tree planting in November 2013 at Kanyariri Veterinary Farm.



This is it as it has to be done. CAVS staff and some student leaders get down to business of planting tree seedlings during the tree planting in November 2013 at Kanyariri Veterinary Farm.



CAVS Students heading for tree planting at Kanyariri Vet Farm on 4th April 2014



Prof. P. K. Gathumbi addressing staff, students and invited guests during tree planting at Kanyariri Vet Farm on 4th April 2014.



Staff, Students and invited guests cheer Dr. J. Omiti, KIPPRA CEO, who was the Chief Guest during tree planting at Kanyariri Vet Farm on 4th April 2014.



Prof.G. Kironchi addressing staff,students and invited guests during tree planting at Kanyariri Vet Farm on 4th April 2014.



Dr. Ganga Rao, Senior Scientist from ICRISAT, Nairobi planting a tree seedling and assisted by students during tree planting at Kanyariri Vet Farm on 4th April 2014.



CAVS Students and staff in the process of plant tree seedlings during tree planting at Kanyariri Vet Farm on 4th April 2014



CAVS Students and staff in the process of plant tree seedlings during tree planting at Kanyariri Vet Farm on 4th April 2014.



Neighbors including young children could not resist the fun and joy of planting a tree and readily participated during tree planting at Kanyariri Vet Farm on 4th April 2014. The farm has gradually become greener as a result of annual tree planting.

In 2013, CAVS College Management Board held a retreat at Kibwezi Field Station focusing on Performance Enhancement Strategies, Leadership and management issues while embedding Team work Sessions. This workshop was facilitated by Empowerment Resource Technologies.

The retreat objectives included:

- Performance Enhancement
- Intellectual Stimulation
- Acquire fresh perspectives
- Enhance team spirit





Seed Bean crop in Kibwezi field Station-August 2013

CAVS College Management Board (CMB) visiting Kibwezi Field Station during the CMB Retreat in August 2013



Beef Bulls at Kibwezi Field Station: August 2013



CAVS CMB Members during a team building session in Kibwezi Field Station in August 2013



CAVS CMB Members during a team building session in Kibwezi Field Station in August 2013



CAVS CMB Members during a team building session in Kibwezi Field Station in August 2013 with Prof. W. Kogi-Makau in action.



CAVS CMB Members during a team building session in Kibwezi Field Station in August 2013 with Mr. E. Mugo, driver in Plant Science and Crop Protection taking charge of the ball.



CAVS CMB Members during a team building session in Kibwezi Field Station in August 2013 with Prof. S. M. Kiama, Director, WMIPES defending his team.



CAVS CMB Members during a team building session in Kibwezi Field Station in August 2013 with both Dr. F. I. Mugivane, Chairman, Agricultural Economics and Dr. J.E. Mande, Chairman, Clinical Studies Department trying to hit the ball. Who is in control here?



CAVS CMB Members during a team building session in Kibwezi Field Station in August 2013. Even Accountants can also manage footballs as demonstrated by Mr. Ndiritu, CAVS Bursar who is demonstrating his skills in controlling in the ball.

CAVS participates in several shows and exhibitions within and outside Kenya. The performance of CAVS at National International Trade Fair has been exemplary and in 2013, CAVS scooped 125 awards and 19 trophies and this is no mean achievement.



CAVS show committee members are presenting to Prof. A. W. Mwang'ombe, the Principal, some of the trophies the college was awarded during the NITF 2013 during a brief ceremony at the Principal's office.