

**UNIVERSITY OF NAIROBI**  
**College of Agriculture and Veterinary Sciences**  
**DEPARTMENT OF PLANT SCIENCE AND CROP PROTECTION**

**1) Introduction**

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) in the Upper Kabete Campus. The two departments were later re-organized and 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; namely Crop Science and Crop Protection. The Crop Science Section is made up of the following units: Agronomy, Horticulture, Plant Breeding and Biometry. While the Crop Protection Section is made up of 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, Postgraduate Diploma in Phytosanitary Measures, certificate courses in Floriculture and Phytosanitary Measures and services 51 courses for different departments in the College of Agriculture and Veterinary Sciences (CAVS). The Department offers masters and PhD programmes in Agronomy, Plant Breeding, Plant Pathology, Plant Protection, Horticulture and Agricultural Resource Management.

The Department undertakes rigorous training for both Undergraduate and Postgraduate levels and conducts research geared towards solving national and international problems. The Department also undertakes consultancies, advisory services and encourages both national and international collaboration. The Department has strong linkages with national, regional and international research institutions and universities.

The department has qualified staff and thus able to deliver quality training and research in all areas of its mandate.

**2. Programmes Offered in the Department**

- a) Diploma**
  - Diploma in Crop Protection (2 years)
  - Postgraduate Diploma in Phytosanitary Measures

- c) **Degree**  
BSc Horticulture

c) **Postgraduate Programs**

The department trains students for Masters of Science and Doctor of Philosophy degrees in various fields of specialization

1. MSc. Agricultural Resource Management (Full time and ODL)
2. MSc. Crop Protection (Full time and ODL)
3. MSc. Plant Pathology (Full time)
4. MSc. Plant Breeding & Biotechnology (Full time)
5. MSc. Agronomy (Full time and ODL)
6. MSc. Horticulture (Full time and ODL)
7. MSc. Seed Technology and Business Management (Full time)
8. PhD Crop Protection
9. PhD Agricultural Resource Management
10. PhD Agronomy
11. PhD Horticulture
12. PhD Seed Technology and Business Management
13. PhD Plant Breeding & Biotechnology
14. PhD Plant Pathology

3. **Enrolled students in undergraduate and postgraduate programmes**

1.	Diploma in Crop Protection	-	18
2.	BSc Horticulture	-	46
3.	MSc. Crop Protection	-	12
4.	MSc. Plant Breeding and Biotechnology	-	6
5.	MSc. Agronomy	-	10
6.	MSc. ARM	-	3
7.	MSc. Horticulture	-	3
8.	MSc Plant Pathology	-	5
9.	MSc Seed Technology & Business Management	-	2
10.	PhD Crop Protection	-	3
11.	PhD ARM	-	1

4. **International student component**

1. Seraphine Uzamushaka (MSc. Agronomy) from Rwanda
2. Lou Jimmy Morris Lado (MSc. Plant Breeding) from South Sudan
3. Sitta Barnaas Justo (MSc. Plant Breeding) from Tanzania
4. Taban Nelson Michael (MSc. Seed Technology & Business Mgt) from Tanzania
5. Langa Fabiola Peter (MSc. Seed Technology & Business Mgt) from Tanzania
6. Bernabas Mdenye(MSc. Seed Technology & Business Mgt) from Tanzania
7. Maliha H. Saggaf (MSc. Crop Protection) from Tanzania
8. Lwabulala Dickson Maximilian (MSc. Crop Protection) from Tanzania

9. Bonane Christelle Sinza (MSc Seed Technology & Business Mgt) from Rwanda
10. Constantin Dushimimana (MSc Horticulture) from Rwanda
11. Morris Mildred (Msc Crop Protection) from Liberia
12. Bryan Elwich John Denis (MSc Plant Breeding) from South Sudan
13. Yuga Mario Enock (MSc Plant Breeding) from South Sudan
14. Kambale Mbusa Heritier (MSc Plant Breeding) from Congo
15. Katembo Kataliko Richard (MSc Plant Breeding) from Congo
16. Batumike Nshobole Ruphine (MSc Plant Breeding) from Congo
17. Musungayi Mpongolo Eric (MSc Plant Breeding) from Congo
18. Malith David Maluk (MSc Plant Breeding) from South Sudan
19. Lado Lilian Kaku Angelo (MSc Plant Breeding) from South Sudan
20. JalalEldeen Chol Atemi (MSc Plant Breeding) from South Sudan
21. Mahad Abdiaziz Mohamed (MSc Agronomy) from Somalia
22. Kayira Godfrey Tiwonge (MSc Agronomy) from Malawi
23. Habineza Mpunga JeanPierre (MSc Agronomy) from Congo
24. Akili Martin Charles (MSc Seed Technology & Business Mgt) from Tanzania
25. Manyozo Fred N. (MSc Horticulture) from Malawi
26. Kamatensi Jovia (MSc Horticulture) from Rwanda
27. Haswell Blair Dambolachepa (MSc Crop Protection) from Malawi
28. Matilda Mdyetseni (MSc Crop Protection) from Malawi
29. Mbarushimana Jean De Dieu (MSc Agronomy) from Rwanda
30. Riak Ayor Elizabeth (MSc Agronomy) from South Sudan
31. Mondo Jean Mubalama (MSc Plant Breeding) from Congo
32. Yohannes Tadesse (PhD Plant Breeding) from Eriteria
33. Mekonnen Tachale Birhan (PhD Plant Breeding) from Ethiopia
34. Tefera Zeleke Wondimu (PhD Agronomy) from Ethiopia
35. Caleb Mahoya (PhD Crop Protection) from Zambia
36. Mudde Barnabas (PhD Crop Protection) from Uganda
37. Sserumaga Julius Pyton (PhD Plant Breeding) from Uganda
38. Ebanda Ondoa Raphael (PhD ARM) from Cameroon

## 5. Research Activities;

1. Seed Enterprise management Institute (SEMIs) Project  
The Seed Enterprise Management Institute (SEMIs) project is a collaborative initiative funded by Association for a Green Revolution in Africa (AGRA). The Project is led by University of Nairobi. Collaborators include Iowa State University (ISU), International Maize and Wheat Improvement Center (CIMMYT), Kenya Seed Company (KSCo), Kenya Plant Health Inspectorate Services (KEPHIS) and other private and public institutions in the seed delivery systems. The role of SEMIs is mainly geared to providing capacity to the seed industry in sub-Saharan Africa mainly through training on seed systems management for seed practitioners. Funded by AGRA, Investigators: Prof. A. Mwang'ombe, Prof. F. Olubayo and Dr. K. Njoroge. Collaborators: International Maize and Wheat Improvement Center (CIMMYT), Iowa State University (ISU), Kenya Plant Health Inspectorate Services (KEPHIS). Third Phase
2. Establishing fruit aggregation and processing hubs for small-holder farmers University of Nairobi and Rockefeller Foundation.
3. The Australia Awards Africa fellowships in increasing the development impact of agricultural research. UoN, University of Sydney

4. Strengthening capacities and informing policies for developing value chains of neglected and underutilized crops in Africa. Bioversity International (Bioversity) and UoN
5. Joining efforts to produce elite *melia volkensii* clones and validate. UoN, KEFRI, UGent and BGF
6. **International Links and Collaborations**
  1. University of Nairobi (SEMs), CYIMMT, Alliance for Green Revolution Africa (AGRA) and Iowa State University, USA. Prof. Agnes Mwang'ombe, and Prof. Florence Olubayo.
  2. UoN, University of Sydney The Australia Awards Africa fellowships in increasing the development impact of agricultural research. Prof. F. Olubayo and Prof. G. Chemining'wa
7. **Publications**
  1. Paul Kuria, Muhammad Ilyas, Elijah Ateka, **Douglas Miano**, Justus Onguso, James C. Carrington, Nigel J. Taylor. Differential response of cassava genotypes to infection by cassava mosaic geminiviruses *Virus Research* 227 (2017)69081 September 2016
  2. R.N. Khaemba, **J.M. Kinama and G. N. Chemining'wa**. Effect of Tillage Practice on Growth and Yield of Three selected cowpea varieties. *Journal of Experimental Agriculture International* 14(3): 1-11, 2016 Article no. JEAI.26894. ISSN:2231-0606 October 2016
  3. Rabson M. Mulenga, James P. Legg, Joseph Ndunguru, **Douglas W. Miano, Eunice W. Mutitu**, Patrick C. Chikoti, O. J. Alabi Survey, Molecular Detection, and Characterization of Geminiviruses Associated with Cassava Mosaic Disease in Zambia *The American Phytopathological Society. Plant Disease* Vol. 100.No. 7 1379-1387 July 2016
  4. Paul Kuria, Elijah Ateka, **Douglas Miano**, Justus Onguso and Nigel J. Taylor Identification and analysis of cassava genotype TME3 bacteria artificial chromosome libraries for characterization of the cassava mosaic disease *The African Journal of Biotechnology* Vol. 15(29), pp. 1575-1596 September 2016
  5. John Maina Wagacha, Nancy Karimi Njeru, Oliver Otieno Okumu, **James Wanjohi Muthomi**, Charity Kawira Mutegi Occurrence of Fusarium Head Blight of Wheat and associated mycotoxins in Narok and Nakuru counties, Kenya *World Journal of Agricultural Research*, Vol 4, No. 4, 119-127 September 2016
  6. Erick Nyagari, **Cecilia Moraa Onyango** and Richard Ndemo Onwonga Effects of intercropping arrangements and fertilizer application on growth and yield of African nightshade *International Journal of Agriculture and Environmental Research*, Vol 2, Issue 05. ISSN: 2455-6939 September 2016
  7. **Cecilia Moraa Onyango**, Edward Gizemba Ontta, Richard Ndemo Onwong'a, Nyamongo Desterio and Jean R. Gapusi Status and Production Practices of Vegetable African Nightshade (*Solanum nigrum* L.) in Selected communities of Kenya *American Journal of Experimental Agriculture* 13(3): 1-12, AJEA. 27363. ISSN:2231-0606 July 2016
  8. Oliver O. Okumu, **James W. Muthomi**, Charity K. Mutegi, John W. Wagacha. Resistance of Kenyan wheat germplasm to Fusarium head blight and deoxynivalenol contamination. *International Journal of Agronomy and Agricultural Research (IJAAR)*. Vol 9. No. 2. P22-35 August 2016
  9. Ambuko, J. Onsongo, N.K., **Hutchinson, M. J.** and Owino W. O. A comparative evaluation of quality and sensory characteristics of 'Apple' mango fruits produced under different agro-ecological zones in Kenya. *Acta Hort (ISHS)* 1120: 429-434

10. Ambuko, J. Onsongo, N.K., **Hutchinson, M. J.** and Owino W. O. Response of 'Apple' mango fruit to 1-methylcyclopropene as affected agro-ecological zone and maturity stage. Acta Hort (ISHS) 1111:347-354
11. Owino, W, O. P. Yumbya, S. Shibairo, **J. Ambuko** Efficacy of Activebag packaging on postharvest quality of purple passion fruit (*Passiflora edulis* Sims). Acta Hort (ISHS) 1120:85-90
12. P. K. Maina, P. M. Wachira, S. A. Okoth, **J. W. Kimenju** and J. M. Mwangi Co-occurrence and Diversity of Soil *Trichoderma* and *Fusarium* species from Different Land Use Intensities in Machakos County, Kenya Archives of Current Research International 4(1): 1-13, 2016, Article no.ACRI.24894 ISSN: 2454-7077 SCIENCEDOMAIN international [www.sciencedomain.org](http://www.sciencedomain.org) April 2016
13. Moffat K. Njoroge, **D.C. Kilalo, D.W. Miano** and D. L. Mutisya Whiteflies species distribution and abundance on cassava crop in different agro-ecological zones of Kenya Journal of Entomology and Zoology Studies 2016:4(3): 248-262 April 2016
14. D. O. Wasonga, **J.L. Ambuko, G.N. Chemining'wa**, D. A. Odeny and B. G. Crampton Morphological Characterization and Selection of Spider Plant (*Cleome gynandra*) Accessions from Kenya and South Africa Asian Journal of Agricultural Sciences 7(4): 36-44, 2015/2016
15. E.N. Marigi, J.O. Masanga, T.L. Munga, L.S. Karanja, M.P. Ngugi, W.M. Thagana, D. Kirubi, M. Mwangi, C.M. Githunguri, **W. M. Muiru, Douglas Miano**, A. E. Alakonya and R. O. Oduor Optimisation of a somatic embryogenesis and transformation protocol for farmer-preferred cassava cultivars in Kenya. African Crop Science Journal, Vol.24, Issue Supplement 1, pp.35-44 April 2016
16. Getu Beyene<sup>1</sup>, Raj Deepika Chauhan, Henry Wagaba, Theodore Moll, Titus Alicai, **Douglas Miano**, James C. Carrington And Nigel J . Taylor Loss of CMD2-mediated resistance to cassava mosaic disease in plants regenerated through somatic embryogenesis Molecular Plant Pathology Published By British Society For Plant Pathology And John Wiley & Sons Ltd DOI: 10.1111/mpp.12353 March 2016

#### 8. Consultancies

- Efficacy Trials
- Diagnostics of Crop Diseases and Pests

#### 9. No. of staff and their designation

Professor	-	8
Associate Professor	-	8
Senior Lecturer	-	7
Lecturer	-	5
Tutorial Fellow	-	3
Chief Technologist	-	1
Senior Technologist	-	6
Technologist	-	9
Secretary	-	2
Assistant Technologist	-	2
Office Assistant	-	1
Driver	-	2
Cleaner	-	4
Total		58

**10. Number of Graduands**

1.	Diploma in Crop Protection	-	10
2.	MSc. Crop Protection	-	10
3.	MSc. Plant Breeding	-	5
4.	MSc. Agronomy	-	3
5.	MSc. Agricultural Resource Management	-	2
6.	MSc. Horticulture	-	3
7.	PhD in Agronomy	-	2

**11. Papers presented at conferences.**

**Horticultural Association of Kenya Workshop Chuka University, Meru 28<sup>th</sup> November to 2<sup>nd</sup> December 2016**

1. Dr. J. Ambuko Strengthening the experimental research environment with special focus on Laboratory techniques/methodologies

**Neglected and Underutilized species workshop and exhibition CAVS and Ngong hills hotel, Nairobi 28<sup>th</sup> to 30<sup>th</sup> September 2016**

2. Prof. G. Chemining'wa. The Value Chain and the Role of research.