



# Rothamsted International African Fellows Programme

Issue 1

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"The RI programme is very useful and unique in Europe since it offers opportunities for applied research in cooperation with African partners. The support of RI is gratefully acknowledged".

Professor Reiner Finkeldey, University of Göttingen, Germany (supervisor of Marius Ekue from Benin).

## Sharing Research Excellence

for the benefit of rural economies in Africa since 2004

The African Fellows Programme is a scheme which aims to facilitate capacity building and training in agricultural science by providing African scientists with short-term Fellowships to work with a research group at a European laboratory.

The African continent includes the 25 poorest countries in the world. Malnutrition and poverty affect a large proportion of its people and food insecurity is increasing.

Agriculture has a vital role in reducing poverty and increasing food security. Improving agriculture can be an engine for sustainable economic development. Initially this must be at the local, small-holder scale to enable development of a

dynamic rural economy at the village level, and further.

The African Fellows Programme aims to address specific local agricultural problems and to enable institutional strengthening and knowledge transfer in the longer term. This is achieved by catalysing partnerships between African and European scientists.

With sustained efforts, these partnerships will

empower resource-poor countries to identify locally appropriate solutions to problems being faced in rural agricultural development.

This newsletter highlights some of our African Fellows Programme projects which illustrate the benefits of sharing the expertise of Rothamsted and other European science institutes to issues facing farmers in Africa.

The first two  
African Fellows,  
Josephine  
Namaganda &  
Valentine Aritua  
from KARI,  
Uganda.



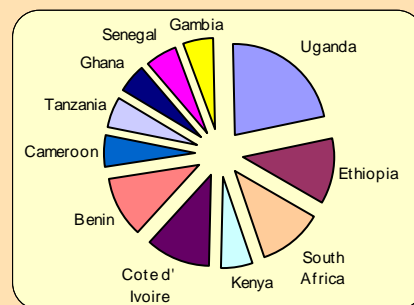
## Interest in the Fellowship scheme

Since the programme was launched in 2004, there have been six complete rounds of funding with interest steadily increasing. Applications have been from 46 of the 53 African countries (including island nations).

In total, 490 pre-proposals have been received and from these, 21 African Fellowships have

been awarded to scientists with an average age of 39. Of these, one quarter were from women scientists.

The Fellowships are awarded for a period of 4-12 months. A critical part in the assessment of proposals is the potential for each project to achieve impact and improve small-holder agriculture by targeting specific local issues.



Distribution of Fellows by  
country of origin

## Fruit crop protection

### Diagnosing viruses infecting papaya in Cote d'Ivoire ~ Hortense Diallo



Hortense Diallo visited local primary schools in traditional dress during her Fellowship to speak about her work and home country.

Hortense is from the Université d'Abobo-Adjamé in Abidjan. She spent her Fellowship with Professor Phil Jones, of the Global Plant Clinic, at Rothamsted Research, England investigating viruses of papaya.

Papaya fruit production was promoted in Côte d'Ivoire when the government recommended small growers should diversify and cultivate plants other than banana. However, the severity and rapid spread of viral diseases of papaya threaten the future

of this plant. Several small producers have consequently abandoned their entire plantations and have no other source of income.

The Fellowship work that Hortense did at Rothamsted Research resulted in the first confirmed identification and characterisation of Papaya Ring Spot Virus (PRSV) in papaya in Cote D'Ivoire. This is a disease causing enormous damage to the papaya fruit crops. The PRSV sequence has been submitted to the international gene bank, and an advisory Bulletin for the

extension service was produced.

The benefit of this international collaboration also goes to her university through the capacity building aspect as they now have a well trained member who can transmit her new knowledge and skills to the students. More importantly, there is a tremendous benefit to the small-scale papaya growers who will have their household income improved by applying the adequate control methods relevant to the specific diseases.

## Crop improvement

### Developing drought resistant cowpea in South Africa ~ Dr Nompumelelo Matole

Nompumelelo (Mpumi) is from ARC-Roodeplaat Vegetable and Ornamental Plant Institute, Pretoria. She spent her Fellowship with Dr Mike Humphreys at the Institute of Grassland & Environmental Research, Wales.

She characterised gene-derived molecular markers that will serve as a basis to further dissect the molecular

mechanism of drought tolerance in Cowpea. Cowpea is one of the most significant legume crops in the semi-arid tropics. It is cultivated for its leaves, pods, grain and stover. Being shade tolerant, it is an important component of traditional intercropping systems.

Following her Fellowship, she was appointed to a key position to manage Cowpea research. She will incorporate

the outcome of her research into commercial breeding programmes.

Her supervisor commented "An excellent visiting research worker with high motivation and intelligence. I believe all involved with Dr Matole at IGER regarded her with considerable affection and respect. I believe those feelings were reciprocated. This was a very positive experience for all concerned".

Nompumelelo's career has taken off since her return to South Africa - she has become Cowpea Project Manager with the African Agricultural Technology Foundation (AATF).

She says this will really contribute to the development and advancement of subsistence Cowpea farmers in Africa.

## Vegetable crop protection

### Tomato diseases in Uganda ~ Dr Charles Ssekya



After this Fellowship, Charles was appointed as Director for Research at Uganda Martyrs University

Charles is from the Martyrs University in Uganda and spent his Fellowship at the Centre for Arid Zone Studies (CAZS) at the University of Wales in Bangor. He worked with Dr Katherine Steele and investigated the molecular characterisation of Tomato Leaf Curl Disease viruses in Uganda.

Vegetables such as tomatoes play an important role in Uganda in

supplementing the diet and increasing the income of small-scale farmers. Yields are low due to severe biotic and abiotic constraints.

Charles investigated the variation that exists in leaf curl viruses across Uganda. His findings will enable selection of tomato varieties for cultivation by growers across the region.

# Agroforestry

## Genetic variation of the baobab in Benin – Achille Assogbadjo



Achille is from the Université d'Abomey-Calavi, Cotonou and spent his fellowship with Prof. Patrick Van Damme at the Laboratory of Tropical and Subtropical Agriculture and Ethnobotany, Ghent, Belgium.

The multi-purpose baobab trees provide food for people & livestock, shelter, clothing, fibre, medicine and other resources for hunting & fishing

Achille documented the genetic variation among and between baobab populations of Benin.

This information will ensure that sampling strategies maximize the biodiversity conserved on farms, in the wild and in gene-banks. He worked with local people and NGOs (Non-Governmental

Organisations) to evaluate a series of different baobabs to see whether they can more fully meet local needs, especially for human food. This may lead to a programme of domestication and improved varieties suitable for specific areas.

He has now been granted a Vavilov Frankel Fellowship to continue investigations on baobab in other West African countries. The main objective of this new project is to develop strategies for better use of the species for the benefit of local people. His Institute has been included as part of a European Union project grant (€2.1 m) that will develop a four year agro-forestry programme on baobab for West Africa.

This partnership has subsequently been awarded a Royal Society Ghana-Tanzania Networking Grant to continue their collaboration, this time on "biochar technology".

## Soils & the environment

### Soil infertility & carbon dynamics in Ghana ~ Edward Yeboah

Edward is from the Soil Research Institute in Kumasi, Ghana and spent his Fellowship with Dr Saran Sohi of the Soil Science Department at Rothamsted Research, England.

Rapid declines in soil organic matter are a key factor in falling crop productivity in Africa. Edward tested the Rothamsted 'ROTH C' Carbon Model under

the environmental conditions of Ghana for various management scenarios. In the face of climate change, this could be used in management strategies for increasing food security under different farming systems prevalent in sub-Saharan Africa.

Benefits arising from this Fellowship are: the potential for collaboration with other institutes

in Africa on the Climate Change Adaptation for Africa programme ([www.idrc.ca/ccaa](http://www.idrc.ca/ccaa)); contributions to post-graduate training at local universities; and knowledge transfer with key messages from the Soil Research Institutes. This research is being transferred to farmers through regular participation in discussion groups at local and national agricultural events.

## Livestock protection & breeding

### Breeding for mastitis resistance in Tanzanian cattle ~ Eson Karimuribo

Eson is from the Sokoine University of Agriculture in Tanzania and was based at the Moredun Research Institute in Scotland with Dr Keith Ballingall.

He did a molecular genetic investigation of mastitis resistance mechanisms in Maasai and Boran cattle in Tanzania. This disease

causes a severe reduction in the quantity and quality of milk for the tribe's people.

His project showed there is a vast diversity of alleles in the Maasai cattle and shed light on the possibility of using typing technology as part of a control strategy involving selection of animals for cross-breeding.

Ultimately, this has the potential to lead to an increased quality and supply of milk.



"Improved milk quality and supply could enable a family to have surplus to sell and hence to afford to educate a child".

# Other Fellowships awarded

Dr Valentine Aritua ~ Banana Bacterial Wilt (BBW) disease diagnostics and epidemiology (Uganda/England)

Dr Gelagay Ayelet ~ Foot and Mouth Disease control strategies (Ethiopia/England)

Bosco Bua ~ Assessing the diversity and resistance of Brown Streak virus affecting cassava (Uganda/England)

Dr Ndeye Ndack Diop ~ Isolation and characterisation of drought resistance genes in cowpea (Senegal/France)

Marius Ekué ~ Exploring the genetic diversity of the agroforestry ackee tree (Benin/Germany)

Dr Bonto Faburay ~ Studies of heartwater disease vaccine production in livestock (Gambia/Netherlands)

Nazaire Kouassi ~ Disease diagnostics for identification of viruses of bananas (Cote d'Ivoire/England)



Nazaire Kouassi with supervisor Julian Smith during a visit to Rothamsted Research

Caroline Kadu ~ Developing new management tools for the allanbackia tree (Kenya/Scotland)

Walter Leke ~ The molecular epidemiology of begomoviruses infecting okra and watermelon (Cameroon/Sweden)

Dr Josephine Namaganda ~ Bio-safety of banana for subsistence growers (Uganda/England)

Dr Alicia Timm ~ Molecular studies of the genetic diversity of thrips (South Africa/Switzerland)

Fassil Yimamu-Kebede ~ Screening of boron-tolerant lentils for drought resistance (Ethiopia/Wales)



**Rothamsted  
International**

Rothamsted International  
West Common  
Harpenden  
Herts  
AL5 2JQ  
England

Phone: +44 (0) 1582 763133  
Exts. 2441 / 2810 / 2475  
Fax: +44 (0) 1582 467490  
E-mail: [rothamsted.international@bbsrc.ac.uk](mailto:rothamsted.international@bbsrc.ac.uk)  
Website: [www.rothamsted-international.org](http://www.rothamsted-international.org)



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Rothamsted International is a non-profit making charity organisation which works towards sharing scientific expertise in agricultural and environmental sciences. It was founded in 1993 to commemorate 150 years of Rothamsted Research, the world-renowned research institute involved in crop sciences and sustainable agriculture.

The mission of Rothamsted International is to share research excellence across the world to benefit agricultural sustainability for developing and emerging countries. It does this through managing two Fellowship schemes (The African Fellows Programme and the Rothamsted International Fellowship Scheme), several other international projects and provision of advice for Rothamsted Research scientists on international funding and development of projects linked to developing and emerging countries.