

**TANZANIA**

**War for Cassava**

Marker-assisted breeding will be used to fight Cassava Brown Streak Virus (CBSV). It will enable breeders to determine whether or not the desired genes of CBSD resistance have been successfully transferred

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**CLIMATE CHANGE**

**Curriculum 4 Hides**

Kenya has developed a new curriculum in leather science technology that will be taught at the university level

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**RESEARCH »**

**LAB FOR AFRICA OPENS**

Africa's research capability will now be at par with the world's most developed countries, thanks to a world-class biosciences research facility based at the International Livestock Research Institute (ILRI) campus in Nairobi

SCI Page 9 »



**Africa is absent from HIV basic researches**

**HENRY NEONDO**

Although AIDS treatment is good and has gone a long way to greatly minimize the suffering and impact in people living with HIV and AIDS in Africa, AIDS vaccine and other prevention tools are desperately needed and the momentum of funding AIDS vaccine research need to be maintained.

Dr Pontiano Kaleebu, the Chair of the Africa AIDS Vaccine Programme and whose country Uganda has recently been chosen by WHO to coordinate AIDS vaccine research in Africa, said, ARVs are undoubtedly doing a wonderful work but Africa also urgently needs microbicides, vaccines and other prevention tools.

He said Africa would not just sit by to beg for these tools.

"We have played our part in the whole vaccine trials, having participated in more than 20 clinical trials through funded programmes such as those by the National Agency for AIDS Research (ANRS), International AIDS Vaccine Institute and various other organizations and universities. But most of these are based in the west and only come to Africa to carry out later phases in their research. "Time has come for all these institutions to begin



**An AIDS vaccine researcher in her work station.**

funding basic vaccine research originating from Africa", he said. He added that Africa needs to fully participate and sustain vaccine research.

In the past, there has not been a lot of research in vaccine research other than a few clinical research, but experts around the continent say there is need

for Africa to rise to the occasion and participate all the way. "It is part of our advocacy among African scientists to participate in all vaccine research", they say.

Africa should be part of the whole vaccine research and some of the funding should be diverted to basic research which has not been many other than South Af-

rica. The chairman of the African AIDS Vaccine Programme, said this advocacy is also aimed at governments, and international partners to begin funding Africa's basic vaccine research. Every day, 7, 400 people get infected with the virus that leads to AIDS.

**Climate change war should focus on farms**

The twin battles to improve food security for a growing world population and contain climate change can be fought on the same front—the world's farmland, FAO said in a new report released late last year.

Agriculture not only suffers the impacts of climate change, it is also responsible for 14 percent of global greenhouse gas emissions. But agriculture has the potential to be an important part of the solution, through mitigation—reducing and/or removing—a significant amount of global emissions, FAO says. Some 70 percent of this mitigation potential could be realized in developing countries.

"Many effective strategies for climate change mitigation from agriculture also benefit food security, development and adaptation to climate change," said FAO Assistant Director-General Alexander Müller. "The challenge is to capture these potential synergies, while managing trade-offs that may have negative impacts on food security."

The report, Food Security and Agricultural Mitigation in Developing Countries: Options for Capturing Synergies was launched during the Barcelona Climate Change Talks.

The most important technical options for climate change mitigation from agriculture are improvements in cropland and grazing land management and the restoration of organic soils and degraded lands.

Nearly 90 percent of the technical mitigation potential of agriculture comes from soil carbon sequestration. These options involve increasing the levels of organic matter, of which carbon is the main component, in soil. This can translate into better plant nutrient content, increased water retention capacity and better structure, eventually leading to higher yields and greater resilience. Agricultural mitigation options that sequester carbon can include: low tillage, utilizing residues for composting or mulching, use of perennial crops to cover soil, re-seeding or improving grazing management on grasslands.

**Algeria pushes to improve internet coverage**

Algeria will reach the figure of 1,200,000 ADSL (broadband Internet) connections by the end of 2009, Post and Technology Minister Hamid Bessalah said.

Algeria is still "far" from its goals and ambitions in terms of Information and Communication Technologies (ICT), he is quoted as telling the Algerian radio, stressing that one of its major targets is the development of the broadband infrastructure.

"We currently have about 500,000 ADSL connections, and as our goal is to reach 6 million connections, it is important to upgrade

the infrastructure," he pointed out. "This year we must have at least 700,000 new ADSL connections, and wrap up the year with at least 1,200,000 connections," he added.

A weak network of fixed-main lines, which remains low at less than 10 telephones per 100 persons, is partially offset by the rapid increase in mobile cellular subscribership. In 2007, combined fixed-line and mobile telephone density surpassed 90 telephones per 100 persons Internet broadband services began in 2003 with approximately 200,000 subscribers in 2006.

With around 28 million mobile telephone subscribers (compared with 86,000 in 2000) Algeria is second only to Egypt in user penetration among countries in the region. According to ARPT estimates, the Algerian telecom sector has created 200,000 jobs and is worth 327 billion dinars, or 4% of Algeria's GDP.

But the government's restriction of the internet access in Algeria is not restricted by technical filtering alone. The state controls the Internet infrastructure and regulates content by other means and this has often raised concern to the international observers.

Internet users and Internet service providers (ISPs) can face criminal penalties for posting or allowing the posting of material deemed contrary to public order or morality. Over the past decade, the number of Algerian Internet users has increased more than 20-fold, from 150,000 in 2006 to approximately 3.5 million users in 2008.

Still, the penetration rate is low, at 10.3 percent of the population. According to a 2007 UNDP survey that covered the Maghreb, this is due to high costs of computers and Internet connection and a lack of interesting Web content.

## COUNTRY »

## REGIONAL »

## IITA fights deadly cassava disease

The International Institute of Tropical Agriculture (IITA) and its partners the Agricultural Research Institute (ARI), Tanzania, and the National Agricultural Research Organization (NARO), Uganda, have received a US\$2.4 million grant from the Bill and Melinda Gates Foundation to identify and use molecular markers for faster and more accurate breeding of cassava varieties resistant to Cassava Brown Streak Disease (CBSD).

The disease, which is caused by the Cassava Brown Streak Virus (CBSV) and results in a dry rot in the tuberous roots rendering them inedible, is one of greatest threats to food security in sub-Saharan Africa as cassava is an important staple food from which over 200 million people derive over 50% of their carbohydrate intake.

It is a hardy crop that does well during times of drought and in poor soils. It requires little inputs such as fertilizer and the whole plant is useful from the leaves to the roots.

IITA and ARI have identified a few varieties with some level of resistance to the disease. The four-year project aims to identify the DNA markers associated with the resistance genes in these varieties and integrate marker-assisted selection into cassava breeding programs.

Marker-assisted breeding will enable the breeders to determine whether or not the desired genes of CBSD resistance have been successfully transferred from the parents to the offspring at the seedling stage using DNA testing.

This will dramatically reduce the size of the working populations and the time taken to develop improved varieties.

According to Dr. Morag Ferguson, an IITA scientist and team project leader, breeding for disease-resistant cassava is the most cost-effective and sustainable way to control the devastating effects of the virus.

However, conventional breeding takes 8 to 12 years to produce improved varieties. "The use of molecular markers can reduce this time by allowing selection earlier on in the breeding cycle and by increasing the accuracy of selection. It is like using a magnet in a game of 'find the needle in the haystack'!" she said.

"This project will enable one of the first applications of marker-assisted selection for cassava breeding by the National Agricultural Research Systems (NARS) in Tanzania and Uganda. The markers identified will also be applicable to all countries either struggling with the disease, or concerned with pre-breeding in anticipation of the spread of the virus" she said.

# OIE, FAO to declare rinderpest eradicated

FAO jointly with the World Organisation for Animal Health (OIE) and other partners will some time in the next 18 months, officially declare one of the most devastating animal diseases known to man, rinderpest, as eradicated. In the early 1980s, the disease was still ravaging livestock herds around the world, with devastating epidemics hitting South Asia, the Middle East and Africa. Losses in Nigeria in the 1980s totalled \$2 billion. A 1994 outbreak in northern Pakistan wiped out more than 50 000 cattle and buffalo before being brought under control with help from FAO.

It will be the first time in history that humankind has succeeded in killing off an animal disease and only the second time a disease has been consigned to the dustbin as a result of human efforts. (The first was smallpox, in 1980.)

The victory comes after an intense decades-long campaign—spearheaded by FAO and involving a broad alliance of partners—to isolate rinderpest, also known as cattle plague, in its last few remaining pockets and then wipe it out, once and for all.

At its height in the 1920s, the rinderpest footprint extended from Scandinavia to the Cape of Good Hope and from the Atlantic shore of Africa to the Philippine archipelago, with one outbreak reported in Brazil and another in Australia.

Although some countries made progress during the 20th century in dealing with rinderpest on their own territory, it continued to survive and thrive in others, forming reservoirs from which it regularly broke out.

Using a newly developed vaccine, after 1960 efforts were made to combat rinderpest on a broader scale through various regional campaigns. While successful at first, these programs usually were discontinued too soon and allowed the disease make dramatic comebacks.

Like highly pathogenic avian influenza of the H5N1 variety or the pandemic H1N1/2009 flu virus today, rinderpest seemed unstoppable.

Starting in the late 1980s, the FAO began to convene a series of regular meetings involving animal health authorities from around the globe as well key international organizations like OIE and the African Union's Inter-African Bureau for Animal Resources.

Rinderpest does not affect humans directly but it is lethal to the cattle and hoofed animals upon which they depend for food, income, and draught power. Death rates during outbreaks can approach



A cow lies helpless due to rinderpest

100%.

Caused by a virus and spread by contact and contaminated materials, rinderpest has destroyed countless millions of cattle, buffalo, yaks and their wild relatives, causing staggering economic losses and contributing to famine and social unrest for thousands of years.

Carried into Europe from Asia by invading tribes, outbreaks of rinderpest hit the Roman Empire in AD 376-386 and are suspected as having played a role in its decline and collapse.

Recurring epidemics in France during the 1700s provoked famine and drops in agricultural productivity, feeding into the unrest that culminated in the revolution of 1789.

When rinderpest was introduced into sub-Saharan Africa at the end of the 19th century it killed off 80 to 90 percent of all cattle in the region, leaving the livelihoods of farmers and pastoralists in tatters, causing widespread famine and rendering the region weak in the face of European colonization.

The science needed to deal with rinderpest was there.

Past successes at the regional level showed

that it could be combated effectively. What would it take to do away with the disease, once and for all, FAO asked?

The answer that came out of the talks: a high-level umbrella program that would weave together national and regional activities into a concerted world-wide campaign against the disease. FAO, participants agreed, was the institution best-suited to oversee such a network.

And so in 1994 the Global Rinderpest Eradication Programme was launched, after a series of consultations to gather recommendations from experts around the world. The GREP was set up to act as a spider at the centre of a web—a global coordination mechanism that would allow the international community to jointly undertake rinderpest control in a systematic and comprehensive way.

With FAO acting as the coordinating Secretariat and involving a large group of partner governments, agencies and organizations, the GREP initially focused on charting out the true geographical distribution of rinderpest, getting a better understanding of rinderpest's epidemiology, and helping countries cope with emergency situations.

Phase two involved targeted action at the local level where the virus was in circulation.

FAO channelled vast amounts of technical assistance to countries to help them first extinguish outbreaks and then put in place the systems and measures needed to stay free of it.

Activities ran the gamut. Teach-

## 100%

### death rates during an outbreak

ing farmers how to recognize and report the disease. Establishing emergency response plans, biosecurity protocols, and national programs for monitoring and control.

Training veterinarians on designing and implementing blood survey campaigns followed by clinical surveillance and setting up laboratories. The Joint FAO/IAEA Division in Vienna worked to develop and then transfer new rinderpest diagnostic technology to developing countries. GREP, OIE and FAO/IAEA developed performance indicators to assess the campaign's progress.

In the face of this cohesive effort, rinderpest began to retreat.

Now GREP's focus became assisting countries in undertaking the painstaking work of establishing that the rinderpest pathogen was fully eradicated in their animal populations in order to earn a disease-free status from OIE, the international certification body for animal diseases.

Between 1994 and 2009, around 170 countries and territories succeeded in eliminating rinderpest and acquired OIE certification thanks to GREP support.

By early 2000, the rinderpest virus was contained to parts of the Somali Ecosystem (SES), an area covering southern Somalia and adjoining parts of Ethiopia and Kenya, where its footprint could still be found in the bloodstreams of certain animal populations. The last-ever outbreak of the disease occurred in Kenya, in 2001.

Today the last reservoir appears to have been cleared; setting the stage for a full global certification of rinderpest eradication.

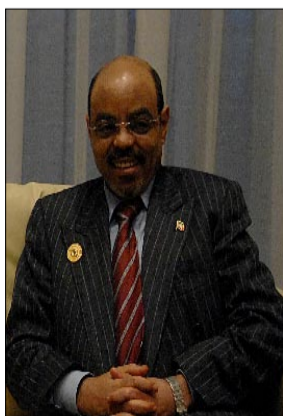
FAO is committed to seeing the last control activities completed next year in partnership with OIE and all concerned stakeholders.

## TB control needs leadership

Ethiopia ranks 7th among the high burden countries and 15th from MDR priority countries.

This is because the country lacks leadership to champion the war on TB.

Although there is enough support from the world's major funding agencies WHO, PEPFAR, GEFTAM for the control of TB, HIV, Malaria etc, local champions miss.



## S. Africa benefit from WHO

South Africa's health system is to benefit from a World Health Organisation strategy, said Deputy Health Minister Molefi Sefularo. "The strategy will improve co-ordination of the activities of the department and those of the WHO," he said in Pretoria. It would ensure the WHO's work in the country was aligned with government priorities.

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## ADVERTISEMENT »

# NHIF Goes Outpatient

*The Social Health Insurer of Choice*

**T**he National Hospital Insurance Fund is today set to turn a new page with the unveiling of an outpatient medical cover. The launch event is scheduled to take place at the Booker Tate Hall within the Mumias Sugar Company Complex in Mumias, presided over by the Minister for Medical Services, Prof Peter Anyang' Nyong'o starting at 9 o'clock.

The NHIF outpatient cover whose name will be known today will initially pilot for a period of six months and is expected to rollout countrywide thereafter. Today's launch is the culmination of intensive research, extensive consultations and dedicated product design. In the initial period of trial the Fund will be testing the cover on 200,000 of its existing members and their dependants drawn mainly from Nairobi, representing an urban setting, and Mumias, representing a rural setting.

Over the years NHIF has endeared itself to many Kenyans with its pocket friendly inpatient cover which now has more than two million principal members. With more than 400 accredited hospitals across the country including government, faith based and private hospitals, NHIF is the most widely available medical cover in Kenya today.

It is expected that when the new out patient cover is made available to the wider public in six months time many Kenyans who would otherwise not afford or access any form of medical insurance will subscribe to it.



## NEWS »

# Varsity students look out commercialized biotech

Over the last two decades, stakeholders in agro-biotechnology have strived to hammer benefits farmers stand to get from biotechnology.

So much that as a result interests has not only been created among farmers, but that the number of students interested in studying biotechnology has also risen. Today, at least four public universities in Kenya are offering either biotechnology courses or related ones with rising number of students every year.

But as years go by, students are beginning to question their decisions. They are discovering that jobs are not only hard to come by, but that even getting research grants is not easy.

To help solve the problem, they have started engaging stakeholders and begin asking hard questions.

Students from Moi university, University of Nairobi, Jomo Kenyatta University of Agriculture and Technology and Kenyatta University studying biotechnology have decided to come together to form a body that would articulate issues that they face.

According to Charles Oyuga, a Biotechnology student of the University of Nairobi and coordinator, University Biotechnology Student network, "the African Biotechnology Stakeholders Forum, the International Acquisition of Agri-biotech technologies in Africa, ISAAA and others do not articulate issues related to students".

Oyuga said the first biotechnology students graduated year back in 1997 and only a handful of them have got gainful employment. "We feel that our universities are not doing enough in supporting graduates of biotechnology".

To emphasise his point further, Ochola said students neither get study funding for proposals submitted nor internships at various international research institutions found locally. Instead, most of these institutions merely give jobs to either communication graduates or people with scant scientific basis.

Supporting the idea, Edward Chege, third Year University of Nairobi said-the first issue current crop of students wish addressed is about attachment and employment and absorption in these scientific institutions.

"We feel as students we need to create sufficient network with biotechnology stakeholders, help create a link with the biotech industry and the institutions of higher learning", he said.

He hopes that what the students have began, through a workshop that invited who is who in the biotechnology industry, will put up measures that will link these two so that even the training they are undergoing will be relevant.

Christine Karwitha, a biochemistry student,



Experts discuss biotechnology issues in Kenya

Kenyatta University says that while the industry talks of crop biotechnology increasing farmers income, students need to know what is happening out there, it would be

**Students neither get study funding for proposals submitted nor internships at various international research institutions**

hard to perform as professionals.

Chege said while students spend a lot of time learning lots of theoretical work, he said, the lessons they learnt usually has to be supplemented with on job training because the industry often finds it inadequate to serve their needs.

But Kinyua Mbijiwe, Corporate Director at the Monsanto, East and Southern Africa, said his farm has long recognized this anomaly and has recently started an internship programme for biotechnology students.

Through this programme, six university students drawn from various Varsities are admitted for a period of six months and also offer attachments of a maximum three months.

## SCIENCE TIPS »

## Ethiopia advised on malaria

There are fears that the recently ended rains could see a surge in malaria endemic areas of Ethiopia.

According to UNICEF, the rainy season has created ideal breeding conditions for malaria-bearing mosquitoes in Ethiopia's Amhara region.

Malaria is endemic in Dembia, where there have been serious epidemics that killed villagers, including members of Mantegbosh's family.

Large-scale epidemics occur every five to eight years in certain areas, aggravated by climatic fluctuations and drought-related nutrition emergencies that weaken children's immune systems. The last major epidemic occurred in 2003, when there were an estimated 6 million cases and more than 40,000 deaths.

Proper malaria control could save thousands of children's lives in Ethiopia every year.

In partnership with members of the Roll Back Malaria initiative, UNICEF has been working with the Government of Ethiopia to cut malarial morbidity and mortality in half by 2010, and another 50 per cent by 2015.

Since 2005, UNICEF Ethiopia has helped to distribute about 20 million insecticide-treated bed nets in malaria prone-districts such as Dembia. Health extension workers make sure that the nets are used properly and that stagnant pools, where mosquitoes breed, are drained.

The Health Extension Programme is the Ministry of Health's flagship strategy for providing basic health, nutrition, sanitation and hygiene to the majority of Ethiopians, 84 per cent of whom live in rural areas. More than 30,000 health extension workers have been trained and dispatched. Essential, immediate treatment is now available.

"In the past, people with malaria would have to walk more than an hour to get health services," says UNICEF Health Project Officer Dr. Ahmed Abdurahman. "Now, thanks to the health extension programme, they are getting the service close to their home."

Alemnesh Kasse, a mother of five, has come to the health post with her youngest daughter, Mastewal Sissay, 7, to get tested. The girl is vomiting and refuses to eat. "She has had malaria before," says the mother, "and in the past I would take her to Kola Diba for testing. But now we can get treatment right here. It is very good." "It's a big deal"

One by one, villagers in Jangwa get their fingers pricked for the malaria blood test. Then they wait patiently as the rapid diagnostic kits determine their status. Mastewal's results show that she does not have the Falciparum malaria strain. The extension workers refer her to the health centre for further tests. The workers, Alemtehay and Mantegbosh, labour diligently and with patience, despite the number of patients coming to them for treatment and the rudimentary facilities to accommodate them.

"I am very happy to be a health extension worker," says Mantegbosh. "It is a big deal that I am able to serve the community where I was born and grew up. I also had malaria. In 2000, I was very sick. But now I am getting the community to use the services and prevent malaria."

## Peace has failed to bring down TB menace in Angola

TB continues to be a major health challenge for Angola. Reports from one of the country's region indicate that at least 590 cases of tuberculosis and seven deaths were reported in northern Kwanza Norte province alone in 2009.

According to the Health provincial director, Manuel Duarte Varela, recorded 1003 tuberculosis cases last year, of which 944 were considered free of disease, 40 are receiving medical treatment, and

19 died. According to the official, tuberculosis is the fourth main cause of death in the region after malaria, diarrhoea and acute respiratory diseases.

According to the World Health Organization's (WHO's) Global Tuberculosis Control Report 2009, the number of new sputum smear positive (SS+) cases notified increased almost threefold, from approximately 7,379 to more than 21,422, between 1999 and 2007.

WHO estimated that there were 48,777 new TB cases in 2007.

Between 2002 and 2007, DOTS (the internationally recommended strategy for TB control) coverage increased from 43 to 63 percent, according to WHO.

National data show that in 2008 the total new SS+ cases notified was estimated at 22,562, what corresponds to an increase in case detection of nearly 5 percent from 2007.

Treatment success rates were between 68 and 74 percent between 2002 and 2005, and national data for 2007 show that the

success rate is still within that range, still below the WHO target of 85 percent. Angola established the National Program for the Control of Tuberculosis (NPCT) in 1981.

However, nearly three decades of civil war have displaced 35 percent of the population, destroyed 70 percent of the country's health facilities, and left a substantial proportion of the population vulnerable to TB.

## REGIONAL »

# Treaty on illegal fishing approved

Angola and Sierra Leone were among the first 11 nations to have signed a new treaty that aims to close fishing ports to ships involved in illegal, unreported and unregulated (IUU) fishing which has been approved by FAO's governing Conference.

Others to have done so are Brazil, Chile, the European Commission, Indonesia, Iceland, Norway, Samoa, the United States and Uruguay—signed the treaty immediately following its approval by the Conference.

By signing the treaty, governments commit themselves to prevent, deter and eventually eliminate IUU fishing including by taking steps to guard their ports against vessels engaged in IUU fishing, thereby preventing fish from such vessels from entering international markets.

Once it enters into force, it will be the first ever legally binding international treaty focused specifically on this problem.

It will also be the only one to enlist so-called "non-flag states" in the fight against IUU fishing, alongside flag states that are primarily responsible for the conduct of vessels flying their flags on the high seas.

The "Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing" is set to enter into force once 25 countries have ratified it.

"This is the most significant international treaty dealing with fisheries since the 1995 UN Fish Stocks Agreement," said Ichiro Nomura, Assistant Director-General of

## 25

Countries ratifies the treaty

FAO's Fisheries Department.

"It's a milestone achievement—no longer will we solely rely on the ability of fishing nations to monitor behaviour by vessels flying their flags on the open waters of the oceans—now countries are committing to taking steps to identify, report and deny entry to offenders at ports where fishing fleets are received. That's a key back-door that will be slammed shut with the new international treaty," he added.

By frustrating responsible management, IUU fishing damages the productivity of fisheries and could lead to their collapse. That's a serious problem for the people who depend on these resources for food and income.

Operating without proper authorization, catching protected species, using outlawed types of gear or disregarding catch quotas are among the most common IUU fishing ac-



Illegal fishermen in haul their catch in their boats. Measures are being taken to curb this.

tivities.

While there are ways to combat IUU fishing at sea, they are often expensive and for developing countries, they can be difficult to implement, given the large ocean spaces that need to be monitored and the costs of the required technology.

As a result, port State measures are widely viewed as one of the best and most efficient ways to fight IUU fishing.

Key measures that port States signing the treaty will commit to are that foreign fishing vessels wishing to dock will be required to request permission from designated ports ahead of time, transmitting information on their activities and the fish they have on board.

This will give authorities an opportunity to spot any red flags in advance.

The Port States will also be required to conduct regular inspections of ships according to a common set of standards. Reviews of ship papers, surveys of fishing gear, examining catches and checking a ship's records can often reveal if it has engaged in IUU fishing and must ensure that ports are adequately

equipped and inspectors properly trained.

Should a vessel be denied access, port states must communicate that information publicly and national authorities of the country whose flag the vessel is flying must take follow-up action.

These measures apply to foreign fishing vessels not flying the flag of port states, however countries can apply them to their own fishing fleets as well.

Parties to the agreement are obliged to undertake regular monitoring of compliance, with a major review scheduled to occur four years after the Agreement first takes effect.

**The cost of adaptation in Africa is estimated at between \$1 billion-\$50 billion per year**

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## SCIENCE TIPS »



## Algeria citizens cushioned against seasonal influenza

Algeria's Ministry of health, Population and Hospital Reform announced Wednesday that about one million people have been vaccinated against seasonal flu.

The vaccination comes against the background of rising infections by the swine flu in the country. The latest figures from the ministry indicate that there are at least in excess of 18 new swine flu infections in the country.

Nationally, the ministry's statistics show that the total number of affected people by swine flu stands at 224 nationwide.

The ministry said in a communiqué that health services are carrying on identifying the people concerned by the vaccination campaign. Initially planned from 15 to 17 November, the campaign has been extended and is still under way in most provinces, the ministry added.

Considering swine flu pandemic, country's

health authorities have decided to provide free of charge vaccination against seasonal flu for the most vulnerable social groups.

The first case of swine flu was recorded in Algiers on 18 current June. This is an Algerian national who came back from Miami in the United States of America via Frankfurt in Germany, with her two children aged 7 and 9, on a flight of the Lufthansa airlines.

Two days later, her son Ammar aged 9, presented signs of H1N1 influenza. Both

patients were hospitalized in El Kettar hospital where they receive care.

The first death from H1N1 virus was recorded in Algeria in September. This is one person died in a hospital in Algiers, and autopsy revealed the cause of death is the influenza virus A.



## Kenya on spot on the rights of PLWA

Members of Kenya's civil society against HIV and AIDS have called on the government to restore Kenya's credibility in the global funding in the fight against AIDS and ensure a policy for people living with HIV and AIDS is in place.

According to National Co-coordinator of Network of People Living with HIV and AIDS in Kenya, NEPHAK, Nelson Otwoma, "It's inhuman to suck an employee who has been infected with HIV therefore there should be a policy protecting them from such occurrences so as to encourage them to live long".

Otuoma said so many children are orphaned due to HIV leaving communities with a burden to educate them by raising funds.

"Should we have embraced their parents by showing them love through acceptance of their status, they would have lived long enough to educate the children", he said.

James Kamau, the coordinator of Kenya Access Treatment Movement said although Kenya and the East Africa region are heavily fund-



ed in the war against AIDS, yet, great opportunities are missed. "We still have a large number of the infected not on ARV cover", he said. This he added has raised issues with Kenya's governance.

The Executive Director of Kenya Aids NGO'S Consortium (KANCO), Allan Ragi, said the country needs to be accountable for resources given in a timely manner so that there is no misuse of resources that are released.

Winnie Lichuma, a Commissioner at the Kenya National Commission on Human Rights said that Human Rights and HIV have yet to get the attention and support they deserve from the government.

She said that a case study has shown that some organizations are still denying people the right to work once they are confirmed HIV positive.

## NEWS »

# Kenya develops curriculum for hide, skin technology

SULEIMAN MBATIAH

A government taskforce established to revitalize the leather sub-sector in Kenya has developed a new curriculum in leather science technology that will be taught at the university level.

The first beneficiaries of the new curriculum which will be offered at the University of Nairobi (UoN) through the Faculty of Veterinary Medicine are certificate holding technical staff working in the hides,

skins and leather products industry.

Kenya has been grappling with acute shortage of qualified technical staff to develop the sub-sector, a factor that has severely hampered the growth of the leather industry.

This has contributed to the dumping of cheap footwear and leather goods in the country due to the high local manufacturing costs of leather and leather products.

According to the Permanent Secretary, Ministry of Industrialization, Prof. John Krop Lonyangapuo, although the leather sub-sector currently earns the country approximately KShs 4.5 Billion annually, the industry has a high potential of doubling this income if Kenya embraces the necessary value addition practices such as improved leather production skills.

"The new curriculum will upgrade the skills of in-service certificate holders and offer opportunities for higher learning at undergraduate and post graduate levels," says Lonyangapuo.

The new graduates will then be expected to provide extension services to pastoralists especially those living in the Arid and Semi Arid Areas (ASALs) in a bid to promote improved animal health and production.

The leather sector will also benefit from advanced tanning techniques and practices.

In order to improve the economic performance of the leather sub-sector, the industry is gearing itself towards export orientation so as to generate the much needed foreign earnings as well as increase

local consumption of leather products for the continued stabilization and enhancement of growth in the industry.

The Ministry of Livestock Development is therefore rooting for the revival of cottage industries as a step towards promoting rural development. "This will increase 'income basket' to our people and induce rural development particularly in the ASALs," notes Mr. Kenneth Lusaka, Permanent Secretary Ministry of Livestock Development-Kenya.

The development of cottage industries in



Leather industry in the Kenya has suffered over the years. Plans on to revitalise it.

## The leather sub-sector currently earns the country approximately KShs 4.5

the country is in line with the Micro, Small and Medium Enterprises (MSME) Competitiveness Project's primary objective to increase growth and competitiveness of MSME's in Kenya.

For four years now, the Project implemented by the Ministry of Industrialization through funding from the World Bank, has been addressing market failures that limit the ability of MSMEs to obtain necessary skills and business services to exploit opportunities and overcome bottlenecks in the business environment.

us detect the resistant TB as early as possible so that spread of the disease is curtailed," she said.

Dr. Michel Gasana, the Head of the TB unit in TRAC Plus attested that managing TB cases has mainly been as a result of testing all TB patients for HIV in a bid to do proper follow up.

"97 percent of people who test positive for TB now know their HIV status and are on antiretrovirals depending on their CD4 count. We are determined to treat and follow up on these cases because multi-drug resistant TB is normally caused by not taking drugs on time," Gasana emphasized.

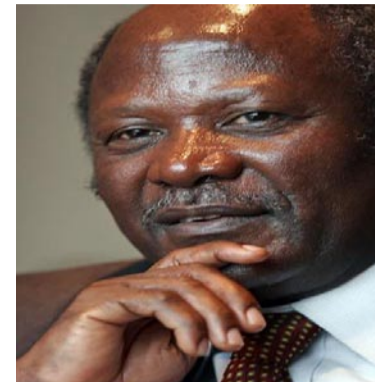
According to Gasana, about 7,800 cases of the TB are reported annually, however this is not a clear impression of the prevalence rate since most people do not go for testing.

The World Health Organization (WHO) Representative in Rwanda, Dr. Jack Abdoulie Dodou, also noted that the increased prevalence of TB in developing countries is directly connected to the HIV rates in sub Saharan Africa.

The HIV/Aids virus destroys the body immunity system leaving victims with very minimal protection against bacteria which causes TB.

## SCIENCE TIPS »

## AGRA, NEPAD to boost food security



Dr Ngongi, ED, AGRA

The Alliance for a Green Revolution in Africa (AGRA) and the New Partnership for Africa's Development (NEPAD) announced that they will join forces to increase food production and achieve food security in Africa.

The partnership will link African government commitments to agricultural development with concrete programs in seeds, soil health, policy, and markets, the African development organizations said in a press release.


Based on the Memorandum of Understanding, the organizations will work directly with national governments and partners across the agricultural value chain in a comprehensive effort to increase the productivity of smallholder farmers growing Africa's staple food crops.

# Rwanda introduces new TB tests

Rwanda has recently introduced a new TB diagnostic test tool able to produce results in a week's time in an attempt to help reduce the burden of the disease.

According to Dr. Agnes Binagwaho, Permanent Secretary in the ministr of health said, the quick method will enable quick medical response to resistant TB as opposed to the available testing system through which patients acquire results after about one to four months.

"Laboratories are a very important part of the health system as they help us diagnose people for proper treatment. The rapid response system will help



**KENYATTA UNIVERSITY**  
OFFICE OF THE REGISTRAR (ACADEMIC)

**ANNOUNCEMENT**


**ALL REGULAR, IBP AND IOL STUDENTS - UCU 103/1**  
**CREATIVE AND CRITICAL THINKING**

Kenyatta University wishes to inform all Regular, IBP and IOL students who require to sit for the examination **UCU 103 Creative and Critical Thinking**, that the examination paper is scheduled on **Thursday 24<sup>th</sup> December, 2009** during the First Semester 2009/2010 examination period.

All affected students are advised to liaise with the Department of Philosophy and Religious Studies for further details.

For more information contact:

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P.O. Box 43844 - 00100  
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Telephone: 8710901-19 EXT. 57182  
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E-mail: registrar-acad@ku.ac.ke



Kenyatta University, ISO 9001:2000 Certified

## REGIONAL »

# Libya, FAO plan for \$71m sustainable agriculture

Libya and FAO will work closely together over the next five years to strengthen food security and sustainable development in the country.

A cooperation agreement, amounting to \$71 million and provided by Libya, was signed in Rome by the Secretary of the General's People Committee for Agriculture, Animal Wealth and Marine Resources, Abu Baker al Mabrouk Al-Mansouri and FAO Director-General Jacques Diouf.

FAO will provide technical assistance and support for 18 projects covering the following areas: pesticides management and the protection of natural resources; integrated pest management; phytosanitary measures; seed development; prevention and control of transboundary animal diseases; veterinary services and animal vaccine assessment; genetic improvement of local animal and poultry breeds; poultry production; sustainable water resource management; biotechnology; assessment of fish stocks and coastal area pollution.

"FAO is proud to become Libya's counterpart in implementing a number of strategic projects that will contribute to national sustainable agricultural development," Jacques Diouf said.

A Programme Management Unit will be established to ensure the proper implementation, monitoring, coordination and evaluation of the programme starting in 2010 and closing in 2014.

Although agriculture is the second-largest sector in the economy, Libya depends on imports in most foods.

Climatic conditions and poor soils limit farm output, and domestic food production meets about 25% of demand.

Domestic conditions limit output, while income and population growth have increased food consumption.

Because of low rainfall, agricultural projects like the Al Khufrah Oasis rely on underground water sources.

Libya's primary agricultural water source remains the Great Man-made River (GMMR), but significant resources are being invested in desalination research to meet growing demand. Libyan agricultural projects and policies are overseen by a General Inspector; there is no Ministry of Agriculture.

Of Libya's 1,760,000 km<sup>2</sup>, only 22,000 km<sup>2</sup> is suitable for cultivation, of which 2,390 km<sup>2</sup> dedicated to irrigated agriculture, 15,500 km<sup>2</sup> to rain fed farming, and 140,000 km<sup>2</sup> of forest and range lands.

Under 2% of the land is arable and about 4% is suitable for grazing livestock. Most arable land is in the Jebel Akhdar region near Benghazi, and the Jifarah Plain near Tripoli.

The highest parts of Jebel Akhdar receive 400-600 mm of rain annually, and the adjacent area, north to



Farmers and traders at a rural Libyan market.

Marj Plain, receives 200-400 mm. Central and eastern Jifarah Plain and Jabal Nafusah average 200 to 400 mm.

The remaining coast and southern areas average 100-200 mm. Jifarah Plain has an underground aquifer, enabling well-driven irrigation.

Between these areas is a 50 km land strip with enough scrub vegetation to support livestock. Desert dominates the south with occasional oasis cultivation at Al Kufrah, Sabha and Marzuq.

Studies from the 1970s indicated that at any given time, about one-third of total arable land remained fallow and up to 45% of farms were under 10 ha.

Most farms in the Jifarah Plain were irrigated by individual wells and electric pumps, although in 1985 only about 1% of arable land was irrigated.

Since 1969, the Qaddafi government has been very concerned with land reform. After the "al-Fatah" revolution, confiscated Italian-owned farms (about 380 km<sup>2</sup>) were redistributed.

The state retained some confiscated lands for state farming ventures, but overall, the government has not sought to eliminate the private sector from agriculture.

In 1971, uncultivated land was declared state property. This measure targeted tribes in the Jebel Akhdar claiming large land tracts.

Another law in 1977 further restricted tribal groups, emphasizing use in determining land ownership.

Since 1977 families receive enough land to satisfy their personal requirements; this policy was designed to prevent large private sector farms and end using fertile "tribal" lands for grazing.

Partly as a result of these policies and Islamic inheritance law, which

stipulate each son receive an equal share of land upon the father's death, in 1986 farms tended to be fragmented and too small to efficiently use water.

This was especially severe in the Jifarah Plain, which has been Libya's single most productive agricultural region.

Falling water tables caused by over irrigation posed a long-term ecological threat.

The government recognized this in 1976, and took measures discouraging citrus and tomato cultivation, which require large water amounts.

However, the steps required to save coastal water resources - i.e., irrigation regulation and land tenure reform to make it more water-efficient - conflicted with Qaddafi's

**Of Libya's 1,760,000 km<sup>2</sup>, only 22,000 km<sup>2</sup> is suitable for cultivation, of which 2,390 km<sup>2</sup> dedicated to irrigated agriculture, 15,500 km<sup>2</sup> to rain fed farming, and 140,000 km<sup>2</sup> of forest and range lands.**

concept of economic equity, which favored intensive irrigated cultivation of small plots for family use.

Thus, instead of reforming harmful practices, agricultural policy since 1983 focused on pumping water to the coast from fossil reserves in the desert as part of the GMMR project.

## SCIENCE TIPS »



## Thousands to miss ARVs

Kenya's government recently rolled out a three week national voluntary testing and counseling targeting more than one million Kenyans who have not been tested. Most Kenyans don't know their HIV/AIDS status and assume they are negative.

Kenya's National Coordinator for the Network of People Living with HIV/AIDS Nelson Otway says that people are merely being used by the government as guinea pigs to get statistics and then left with little or no attention.

"What's the reason for the testing if there are no immediate follow ups? It just adds stigma and misery to the people," he points.

Pointing at this year's World Aids Day theme: Universal Access and Human Rights, Nelson says this is a great violation of human rights for the government failure to meet universal health demands enshrined in the Abuja Declaration to its people.

"Millions of those

who are HIV positive fail to get ARVs among other facilities and when available, they come when it's too late when the CD4 Count, immune system has gone down," he adds.

A normal CD4 count in a man without HIV infection will be approximately 400 to 1200 cells per cubic millimeter of blood, and 500 to 1600 in women.

In Kenya, most patients start receiving ART when the CD4 Count is

as below as 200. Medics point that keeping your CD4 count high can reduce complications of HIV disease and extend your life.

The activists argue that in the same spirit that the government is carrying on with the three week door-to-door testing, so should it avail the necessary interventions such as centers where those turn positive can immediately and with ease access the



## Farmers gain from Bt Cotton

After the second season of planting Bt cotton, farmers in Burkina Faso are expecting to harvest an average 1.3 to 1.5 tons per hectare, a significant gain compared to the 950 kg per hectare which was the average yield for conventional cotton.

A harvest of 150,000 tons of Bt cotton is expected this year country-wide.

This information was shared by farmers last November 8-13, 2009 during a "Seeing-is-believing tour" organized by the International Service for the Acquisition of Agri-biotech Applications (ISAAA) AfriCenter for journalists, policy makers, regulators, farmers and technicians of the cotton sectors from Kenya, Mali and Burkina Faso.

The farmers also noted that compared to con-



ventional cotton which requires on average 8 sprays, Bt cotton requires at most two sprays of pesticides.

This is a relief for farmers and their families for the considerable reduction of labor involved in fetching water for the spray from long distances, and the strain involved in carrying the chemical.

They associated considerable reduction in health issues, such as occasional colds, blisters and poisoning, to less pesticide use and exposure.

## NEWS »

# Mental illness neglected, attention on HIV/AIDS

Jane\* lazes about perplexed by a large number of people who have invaded the town as she watch stray dogs tearing each other at Dagoretti Market slaughter house, outside Kenya's capital Nairobi.

Unaware of what is going on, Jane yells attracting the attention of thousands of people who have turned up for a free voluntary counseling and testing programme launch.

Jane is in her early thirties and among the 4.8 million people in Kenya with disabilities.

She belongs to the 2.9 million with mental disability. Shockingly, less than one percent of this number have access to adequate health facilities.

For the next three weeks, officials from the ministry of Health will knock at peoples' door step for the voluntary canceling and testing all over the country. Jane and her group stand a chance of not knowing their status and follow-ups.

Reportedly, the group has little attention on matters of HIV/AIDS from the government and society at large. Only 23,000 pupils (10-30 years) are accessing education out of less than 1 percent accessing care and rehabilitation.

According to Peter Osano, a sign language teacher Nyaweri Voluntary Counseling and Testing Centre in Kisumu, 164 miles 265 km west of Nairobi, people with disabilities should be included in government efforts towards fighting HIV/AIDS in the country.

"The messages should be packaged in a friendly and understandable manner that will see the deaf, mentally ill, physically challenged and the rest of the groups have adequate access to health facilities," he says.

World Health Organization reports that Kenya has not scaled up her effort in fighting HIV/AIDS in regards to people with disabilities. Kenya has only three disability-friendly VCT centers that are located in the three major cities; Nairobi, Kisumu and Mombasa only.

United Disabled Persons Kenya (UNDPK) executive officer Helen Obande, and Mary Muthoni of Kenya Campaign of Disability and HIV/AIDS have sought for the inclusion of the groups in the ongoing campaign.

Beliefs such as disabled persons are not sexually active hence cannot acquire HIV does not help. Another belief that the disabled are "holy" exposes them to greater danger.

Helen says the group is subjected to rape, incest, sodomy among other challenges and stigma aggravates the problems associated with HIV/AIDS. She adds that the government lacks actual statistics on people with disabilities.

According to Kenya Aids Indicator Survey (KAIS) 2007, among the estimated 1.4 million Kenyan adults aged 15-64 years living with HIV/



A researcher on mental health perusing through records at a local medical facility

## Africa needs to be the voice to advocate for special fund on climate change

# Fewer Kenyans live in risk of malaria

A group of Scientists from Wellcome Kenya Trust, the Ministry of Health and the University of Oxford, UK have now successfully used geo-statistical methods to interpolate malaria risks in Kenya with precision. Interestingly, their findings show that contrary to what is known, majority of Kenyans actually live in areas of very low malaria risks.

According to authors led by Dr Abdisalan M Noo of Malaria Public Health and Epidemiology Group, Centre for Geographic Medicine, KEMRI - University of Oxford - Wellcome



They add that conversely in 2009 only 4.3 million people (10.6%) lived in areas where malaria was predicted to be [greater than or equal to]40% and were largely located around the

Trust Collaborative Programme. "majority of Kenya's 2009 population (35.2 million, 86.3%) reside in areas where predicted P.falciparum is less than 5%."

shores of Lake Victoria. As malaria interventions go to scale effectively tracking epidemiological changes of risk demands a rigorous effort to document infection prevalence in time and space to remodel risks and redefine intervention priorities over the next 10-15 years. Model based geo-statistical methods can be used to and our model shows that the majority of Kenyans live in areas of very low P. falciparum risk.

Details recorded for each survey included the month and year of the survey, sample size, positivity and the age ranges of sampled popula-

tion. Ecological and climate covariates were matched to each PPR2-10 survey location and examined separately and in combination for relationships

According to the authors, Kenya is one of very few countries that have a plethora of malaria risk data, spanning over 30 years. The earliest attempts to describe the spatial distribution of malaria risk in Kenya were based on expert opinion of malaria seasons and climate.

## SCIENCE TIPS »

New map to speed up malaria herb growing



Plant scientists at the University of York, UK, have published the first genetic map of the medicinal herb *Artemisia annua*.

The map is being used to accelerate plant breeding of *Artemisia* and rapidly develop the species into a high-yielding crop.

This development is urgently needed to help meet escalating demand for effective malaria treatments. Already the first new hybrid plants in the field are being tried in Kenya, Uganda and Madagascar.

Though preventable and treatable, malaria is a serious global health problem, estimated to kill almost a million people every year.

## 200m

treatments with ACTs will be needed by 2012

The most effective drugs for treating malaria are Artemisinin Combination Therapies (ACTs). Increased funding for malaria treatments means demand for ACTs is expected to double from last year's figures, to around 200 million treatments, by 2012.

However, meeting this increased demand will be a challenge: artemisinin is extracted from the plant *Artemisia annua*, but yields are low, making production expensive.

In recent years, *Artemisia* production has been uneconomic and planting areas have declined, raising fears of shortages. Plant scientists at the Centre for Novel Agricultural Products (CNAP) in the Department of Biology at the University of York are addressing this problem by using molecular technologies to rapidly improve the *Artemisia* crop.

In the latest issue of *Science*, they publish the first genetic map of this species, plotting the location on the plant's genome of genes, traits and markers associated with high performance.

This will enable scientists to recognise young plants as high performers from their genetics. It will also inform the selection of suitable parent plants for breeding experiments.

The map has been validated in glasshouse experiments that found the top-performing plants had elevated frequencies of genetic indicators for high yield.

The project is led by Prof Dianna Bowles and Professor Ian Graham. The project has just received its second grant from the Bill & Melinda Gates Foundation.

This grant will support final development of the new varieties and their delivery to *Artemisia* producers in Africa and Asia.

## REGIONAL »

# Research facility for Africa opens

GEORGE KEBASO

Africa's national research institutes, research scientists and university students can now comfortably venture into pure scientific research within the continent without necessarily incurring heavy costs by seeking the same in developed countries.

This became a reality when a world-class State-of-the-art biosciences research facility based at the International Livestock Research Institute (ILRI), Nairobi, Kenya, officially opened its doors.

According to Biosciences East and Central African (BecA) Hub Director, Dr Segenet Kelemu; "this means that, Africa's scientists can comfortably venture into new realms of science without constraints of inadequate laboratories. This will also be done at low costs and fewer restrictive regulations in their bid to conduct scientific research that is similar to that done in overseas institutions."

While making this announcement on Wednesday afternoon, she said; "after years of lagging behind in the scientific field, Africa's bioscience research capability is effectively at par with research undertaken in the world's most advanced research institutes."

Speaking to journalists on the sidelines of the East Africa Science Reporting Workshop at ILRI, the molecular plant pathologist said the US\$21 million-laboratory facility

## 21 million-dollar laboratory facility

will partly support research and build capacity by empowering scientists to lead the coming agricultural revolution from within Africa.

"BecA is the first hub of the Africa Biosciences Initiative (ABI) to become fully functional, having been developed with a grant of USD21 million from the Canadian International Development Agency (CIDA)," added Dr. Kelemu.

The laboratory facility's establishment has entailed refurbishing, expanding and equipping laboratories at ILRI to accommodate a wide range of cutting-edge technologies to improve agriculture.

BecA Hub affords Africa's researchers access to the latest equipment and technologies, as well as related scientific support, training and research-related services.

Many scientists have already used BecA's capacities in the crop, livestock and microbial sciences in their ongoing search for solutions to the unique challenges of Africa's de-



Scientists at the BecA laboratory based at the International Livestock Research Institute, Nairobi, Kenya.

velopment.

"Many of the research findings generated so far have found immediate application in agriculture," says Dr Kelemu.

He cited research that has for the first time ever enabled genetic characterization of cassava varieties preferred by farmers in the DRC and Madagascar.

Another project found that Uganda holds rich sweet potato biodiversity, which can be used as a resource to increase food security across the continent.

At the Nairobi biosciences facility, scientists can deploy bioinformatics, an indispensable tool for modern biosciences which involves the use of IT and computer science in the field of molecular biology, genomics (the study of an organism's full set of genes) and proteomics (the study of protein gene products, a next horizon in the biological sciences after genomics).

The facility is also equipped with one of Africa's few advanced bio-safety level III labs, with stringent safety standards for persons working therein, as well as ensuring that the surrounding environment is not in any way affected.

The demand for use of the facility and its services is already growing rapidly.

According to Segenet Kelemu, the Director, BecA, the high demand underscores the continent's need for high quality up-to-date research facilities.

In 2009, the facility hosted about 400 participants in its training workshops and conferences, representing a three-fold increase over 2008.

Says the Director-General of ILRI, Dr Carlos Sere: "The BecA Hub has become a vibrant focal point and fa-

ilitator for science and technology issues, bringing the African scientific community and international partners together as they address African agricultural constraints of significance."

Since 2007, 76 graduate students and trainees and 19 visiting scientists have undertaken research at the facility.

The demand for the facility is coming from well beyond the 17 countries targeted in Eastern and Central Africa. Scientists from South Africa, Zambia, Senegal, Ghana, Nigeria, Mali, and even from non-African countries such as USA and Switzerland have used BecA's state-of-the-art facilities.

BecA is an initiative developed

**Natural products present Africa with realistic, sustainable and viable options to natural resource utilisation besides promising commercial reward**

within a framework of Centres of Excellence for Science and Technology in Africa.

The BecA Hub provides a common biosciences research platform, research-related services and capacity building opportunities to the region and beyond.

The Hub aims to increase access to affordable; world-research facilities, and create, strengthen human resources in biosciences and related disciplines in Africa.

## SCIENCE TIPS »



## FAO wants food security, climate change tackled

Farming practices that capture carbon and store it in agricultural soils offer some of the most promising options for early and cost-effective action on climate change in developing countries, while contributing to food security, FAO said in a policy brief prepared for the Copenhagen summit.

Yet agriculture has been largely excluded from the main climate financing mechanisms under discussion in Denmark, the agency said.

Agriculture not only suffers the impacts of climate change, it is also responsible for 14 percent of global greenhouse gas emissions. But agriculture has the potential to be an important part of the solution, through mitigation-reducing and/or removing a significant amount of

global emissions. Some 70 percent of its potential for reducing emissions could be realized in developing countries, FAO said.

"We hope the UN summit in Copenhagen will send a clear signal that agriculture in developing countries should play a vital role in responding to this global challenge," said Alexander Müller, FAO Assistant Director-General. "There are strong synergies between climate change mitigation, adaptation and food security that will be captured, if we do this right."

The FAO policy brief being released today calls for funding to help "vulnerable" developing nations respond more comprehensively to the dual challenges of climate change and food security."

## Algeria to lose 27m ha to desertification

Algeria risks losing 27.4 million hectares to desertification. This is in addition to another 13 million hectares exposed to the phenomenon of erosion in the watershed.

According to the results of the desertification awareness map (CSD), published Sunday in Algiers, 12 steppe provinces with an area of 27.4 million acres threatened by desertification.

The map developed by the Algerian Space Agency (ASAL), in partnership with the Directorate General of Forests (DGF) is a follow up of similar work developed in 1996 which worked on nine provinces for an area of 20 million ha.

These provinces are Djelfa, M'Sila, Naama, El Bayadh, Biskra, Khenchela, Batna, Tebessa and Laghouat. The main problems of the Mediterranean soils are irreversible losses due in particular to increasing soil sealing and soil erosion.

These processes will continue and probably increase as a result of climate change, land-use changes and other human activities.

Such severe soil degradation can reach the ultimate stage and lead to desertification. According to

tentative estimates, at the present rates of erosion, considerable areas in the Mediterranean currently not at risk may reach a state of ultimate physical degradation, beyond a point of no return within 50-75 years. According to the Executive Secretary of the UNCCD, Mr. Hama Arba Diallo, "all countries in the Mediterranean are affected by desertification and land degradation in some degrees."

"However, the exact quantification, geographical distribution and total impact of such processes are only roughly known. We need to provide policy makers of all involved countries with better and homogeneous information, with a view to facilitate the elaboration, implementation and evaluation of effective programs to combat desertification at the local, national and regional levels."

To address the problem, the UNCCD calls for urgent action and the elaboration of National, Sub-regional and Regional Action Programmes, with the involvement of all interested stakeholders, including governmental and non-governmental representatives, the private sector, international development agencies.

## PEER REVIEWED ARTICLE

# Rise in cultivated, wild relatives of rice

JANE TEI RINGERA

The need to increase current rice production could be prohibited by production systems that rarely apply science.

Production trends show that there is not only need a strong need not only to increase the current rice production levels, but also to come up with supplements for the cultivated rice using science which could employ its wild relatives such as *Oryza punctata* Steud.

In Kenya, rice is the third most important cereal crop after maize and wheat. It forms an important diet for a large proportion of urban dwellers and it is gaining popularity among those living in the rural areas. Kenya rice production comes from cultivated rice (*Oryza sativa* L.) that meets only 60% of rice demands.

Rice is a grass belonging to the family Poaceae and genus *Oryza*. The genus *Oryza* has twenty-five species. Two of the species i.e. *Oryza sativa* L. and *Oryza glaberrima* Steud are cultivated while the rest are wild rice. It is one of the most important cereal crops and feeds over half of the global population.

It is also important forage for both domesticated and wild animal populations. It was the first of the cereals to be sequenced because of its small genome, and because it was realized that the genomic sequence from rice would benefit breeding of other cereal crops. Rice is a grass belonging to the family Poaceae and genus *Oryza*. The genus *Oryza* has twenty-five species.

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It forms an important diet for a large proportion of urban dwellers and it is gaining popularity among those living in the rural areas. Kenya rice production comes from cultivated rice (*Oryza sativa* L.) that meets only 60% of rice demands.

There is, therefore, a strong need not only to increase the current rice production levels, but also to come up with supplements for the cultivated rice using its wild relatives such as *Oryza punctata* Steud.



Some samples of both cultivated and wild rice families common in Kenya.

## Rice is the third most important cereal crop in Kenya after maize and wheat

*Oryza sativa* supplement  
*O. punctata* is a potential food supplement to *O. sativa* during famine. It is a tufted erect annual grass that grows to 120cm in height and usually 4mm or more in diameter. Leaves are about 30cm long and 1cm broad.

The panicle is loose with spreading branches and spikelets are transversely attached to pedicel. The caryopses are red which distinguish it from the brown *O. sativa* caryopses.

It grows in wild habitats and fields adjacent to the rice farms, and sometimes as a weed in rice fields, thus increasing chances of competition. It thrives best in clay and sandy soils and requires temperatures of about 27°C for germination and growth.

It is native to tropical Africa, South Africa, and Madagascar.

In Kenya, it is mainly found in the coastal districts of Tana River, Lamu, Kilifi and Kwale, where it grows in competition with the cultivated rice.

The advantages of *O. punctata* over *O. sativa* include faster maturity rate, thriving in saline and swampy conditions, requires less water, and grows in a wider geographical area.

Despite the above advantages, *O. punctata* is considered important only as one of the most problematic weeds in Kenya, where it is widespread in the fields of the cultivated rice, and along the edges of reservoirs and in watercourses where it impedes the water flow.

In the recent past, Kenya has experienced frequent food shortages, occasioned by crop failures due to failure and unreliable rainfall patterns. With such occurrence, a species such as *O. punctata* that requires less water would be a suitable supplement to *O. sativa*.

Weed-crop competition

## SCIENCE TIPS »

## Banana peel bran solves two issues



Local community initiatives in Uganda have developed a way of converting banana peels into poultry feed, reducing the offal load in the streets and providing a cheap raw material to farmers.

Over 1,500 t of garbage are generated daily in Kampala, capital of Uganda, which the city council has difficulties to collect and process.

Three quarters of garbage rots uncollected on pavements, streets, sewerage outlets and water channels.

Thanks to an innovation of Kasubi Parish Local Community De-

# 500

live on a square of a kilometer

velopment Initiative and Kawaala Recycling and Manufacturing Development Group the waste problem is reduced since they have started turning banana peels into veterinary feeds.

Moses Nadiope, the coordinator of Kasubi Parish Local Community Development Initiative, said the project of turning banana peels into banana bran was developed from the general observation that chicken, pigs, and cows ate the raw peels.

"We wondered why the peels could not be dried and milled into feeds," he said.

Over 70% of the garbage in the area are banana peels, which makes the sourcing of the raw material for making the banana peel bran easy.

"Our project reduces the burden of garbage in our neighborhood because we buy dried banana peels from residents at Shs120 (app. €4 cents) per kg," Nadiope said.

The project is supported by Environmental Alert, an NGO working to ensure environmental protection, bought them a mill they are now using to process the banana peel bran. The machine was given to them on credit but they will be able to clear the debt from the profits they make.

Every day 1 t of peel bran from 6 t of dry banana peels is produced. The banana peel bran is a good substitute to maize bran, which is becoming very expensive for poultry farmers. Lab test showed that the banana peel bran has enough phosphorous, proteins, calcium and is free from heavy metals.



## PEER REVIEWD ARTICLE

Weed-crop competition is one of the major causes of crop yield loss. Competition is here defined as the striving by two or more individuals for a common resource in short supply with a disadvantage accruing to at least one of the competitors.

An improved understanding of the growth characteristics of *O. punctata* and its impact on the growth of cultivated rice has two major benefits: (a) it will be possible to recommend the best cropping system if *O. punctata* is introduced in farming systems as a supplement to *O. sativa*. This is particularly important to small-scale farmers who do not own large farms for rice cultivation.

This will enable them to supplement their low *O. sativa* production. (b) with the potential advent of herbicide-resistant *O. sativa*, there is a risk that *O. punctata* will acquire the resistance gene from the crop and turn it into a super weed, that is difficult to control.

Genetic, physiological, and morphological similarities in cultivated and wild relatives of rice provide opportunities for the transfer of the herbicide-resistant traits, especially if flowering is synchronous.

*O. sativa* has genome AA while *O. punctata* has genomes BB, BBCC.

Hybridization between the two species is therefore possible though to a low degree. To assess the importance of that risk, it is important to know how harmful *O. punctata* is as a weed in a field of *O. sativa*.

## The Study

To get information on the competition between the cultivated rice (*O. sativa*) and wild relative of rice (*O. punctata*) and its possible effects on the plant growth of the two species, we set up shade house study at Chiromo campus, University of Nairobi. Growth was assessed for the two species each grown separately (monoculture) and the two species grown together (mixture). Randomized complete block design with three replications of each treatment was used.

Four treatments namely; *O. sativa* grown alone, *O. sativa* grown together with *O. punctata*, *O. punctata* grown alone and *O. punctata* grown together with *O. sativa* were used.

Data were collected at different growth stages of the rice plant namely; the seedling, vegetative, reproductive, ripening and maturity stage i.e. germination rate at seedling stage, stem height and tillering ability were measured throughout the growing season, flowering rate at reproductive stage, flag leaf (uppermost leaf below the panicle) area at the ripening stage, and the above and below-ground plant dry mass at maturity stage.

Viability tests were carried out on the *O. sativa* and *O. punctata* seeds using the tetrazolium test.

## Results

*O. sativa* seeds had low dormancy that was broken by soaking the seeds in water for 24hrs, while *O. punctata* seeds high seed dormancy was broken by dehusking with sand paper.

*O. sativa* from mixture attained a mean germination rate of 7 seeds per day, which was significantly ( $P < 0.001$ ) higher than 6 seeds from monoculture.

*O. punctata* from mixture attained 4 seeds per day, which was not significantly ( $P > 0.05$ ) different from 3 seeds from monoculture.

60%

Of rice eaten in Kenya is cultivated locally



## PEER REVIEWD ARTICLE

There was a significant ( $P < 0.05$ ) difference among the four treatments in relation to stem height, with mean heights as  $84.20 \pm 2.07$  cm and  $79.39 \pm 2.57$  cm for *O. sativa*, and  $116.00 \pm 13.63$  cm and  $98.93 \pm 8.30$  cm for *O. punctata*, from monoculture and mixture respectively.

*O. sativa* matured within 125 days while *O. punctata* matured within 108 days. *O. punctata* produced significantly ( $P < 0.001$ ) more tillers than *O. sativa* whether in monoculture or mixture. The mean ( $\pm$ SE) of the number of tillers per plant were  $4.43 \pm 0.16$  and  $4.34 \pm 0.21$  for *O. sativa*, and  $9.07 \pm 1.82$  and  $5.74 \pm 2.09$  for *O. punctata*, from monoculture and mixture respectively.

Whether grown in monoculture or in mixture, *O. punctata* flowered 21 days earlier than *O. sativa*.

Early flowering gives the spikelets sufficient time to be filled with assimilates. This rules out the possibility of the herbicide-resistant traits transfer from the crop to *O. punctata* as their flowering is not synchronous.

The mean number ( $\pm$ SE) of the flowering tillers per plant were:  $1.30 \pm 0.05$  and  $0.99 \pm 0.04$  for *O. punctata*, and  $0.54 \pm 0.03$  and  $0.49 \pm 0.03$  for *O. sativa*, from monoculture and mixture respectively.

The monocultures attained significantly ( $P < 0.001$ )

### Advantages of *O. punctata* over *O. sativa* include faster maturity rate, thriving in saline and swampy conditions, requires less water,

higher flag leaf area than the mixtures. The values ( $\pm$ SE) attained were:  $35.00 \pm 0.67$  and  $32.50 \pm 0.72$  for *O. sativa*, and  $26.10 \pm 0.67$  and  $24.70 \pm 0.55$  for *O. punctata*, from monoculture and mixture respectively.

For both species, interspecific competition was detected as a reduction in flag leaf area, which relates directly to grain yield as it provides more recent photosynthates for grain filling.

There was less flag leaf area reduction ( $1.4 \text{ cm}^2$ ) in *O. punctata* than in *O. sativa* ( $2.5 \text{ cm}^2$ ) due to competition, therefore *O. punctata* was considered a better competitor than *O. sativa*.

Biomass accumulation is a good measure of competitive success, because it reflects resource capture under the interference of neighbours. *O. punctata* attained significantly ( $P < 0.001$ ) higher above as well as below-ground plant dry mass than *O. sativa* whether grown in monoculture or in the mixture.

The mean values attained for above-ground were:  $10.98 \pm 0.50$  g and  $9.69 \pm 0.50$  g for *O. sativa*, and  $16.68 \pm 0.50$  g and  $13.55 \pm 0.50$  g for *O. punctata* from monoculture and mixture respectively.

The mean values attained for below-ground were:  $6.68 \pm 0.33$  g and  $6.09 \pm 0.33$  g for *O. sativa*, and  $10.82 \pm 0.33$  g and  $8.93 \pm 0.33$  g for *O. punctata* from monoculture and mixture respectively.

Root growth is a dominant characteristic associated with weed competition. *O. punctata* was found to have more and longer roots than *O. sativa*, with the average root lengths being 20 cm and 50 cm for *O. sativa* and *O. punctata* respectively.

Its high root biomass accumulation and longer and thinner roots with better soil penetration ability help compete effectively for nutrients, making it a better competitor than *O. sativa*.

## Conclusion

*O. sativa* had better overall germination performance than *O. punctata* in both monoculture and mixture.

However, *O. punctata* attained an overall better growth performance in relation to all the other studied growth parameters. Competition significantly ( $P < 0.001$ ) lowered the growth performance of the two species, with greater effect on *O. sativa*.

Due to its aggressive vegetative growth, higher biomass accumulation, and faster maturity, we concluded that *O. punctata* is a stronger competitor than *O. sativa*.

For better growth performance and to avoid *O. punctata* out competing *O. sativa* hence crop yield losses, the two species should be grown separately if *O. punctata* is introduced in our farming systems as supplement to *O. sativa*.

With the difference in flowering periods between the two species, there is no possibility of *O. punctata* super weed formation from the herbicide-resistant *O. sativa*.

The writer is a Doctorate fellow with BiosafeTrain and is a student with the University of Nairobi

## SCIENCE TIPS »

## Chickens fed GM feed means GM birds



An attack on poultry producer Inghams Enterprises could be based on a technicality with some scientific evidence indicating birds fed on genetically modified feed are not modified themselves. The Commerce Commission recently issued Inghams with a warning claiming it risked breaching the Fair Trading Act through false advertising. The company advertised its products as being GM-free, contained no GM ingredients, no added hormones or artificial colours. Inghams also stated that "Inghams GM policy is clear. Our poultry contains no GM content and are not genetically modified."

The commission conducted an investigation into the company after media interest regarding its GM policy and its labelling raised concern

after allegations of false advertising emerged most recently in June this year. Inghams claimed its chickens were GM free even though its birds were eating feed mixed with 13% soy, reports state. The commission asked University of Canterbury professor of genetics and molecular biology Jack Heinemann to research whether chickens that have eaten GM feed could contain GM ingredients in their meat.

Prof Heinemann said; "The cumulative strength of the positive detection reviewed leaves me in no reasonable uncertainty that GM plant material can transfer to animals exposed to GM feed in their diets or environment, and that there can be residual difference in animals or animal-products as a result of exposure to GM feed."

## Condom use fall

More than 60 percent of Kenyans are having unprotected sex. A joint Report to be released soon by UNAIDS and the World Health Organization, reveals.

The report further shows that there is an increase in HIV infections in the country. There are over 100,000 new HIV infections each month, the report reveals.

The report also shows that there is an increase in the number of discordant couples in the country, 80 percent of all marriages, one couple is HIV positive. The report further shows that there is a decrease in HIV infection among prostitutes who were once considered a high risk group.

The report explains that it is because prostitutes use condoms more than married couples, truck drivers, disc jockeys drug addicts and other groups.

Dr Shanaz Sharif in charge of health promotion in the Ministry of Health said that there is a surplus of 5 million condoms in the country and donors are reluctant to provide funds aimed at HIV prevention measures.

"We are having excess condoms and some are nearing their expiry date.



There is a surplus of 5 million and we are about to receive another 10 million this year from donors," said Dr Sharif.

Job Akuno who sits in the National AIDS Control Council, research section, said that a big number of young people say that they enjoy sex more when it is without a condom.

However the report seems different from the current reports that claim that the HIV prevalence in the country has reduced.

The report shows that the prevalence has gone high among people aged 15-24 and those aged over 50.

"This is because many younger people are dating older couples and many are having unprotected sex thinking that their partners are HIV negative. Either one of the partners who is infected infects the other one in the process," Akuno told ASNS.

## AWARDS »

## Omololu Falobi Award

Opportunity to attend the Microbicide Conference in the US

Call for Nominations: Omololu Falobi Award for Excellence in HIV Prevention

**Deadline: 31 January 2010**

The Omololu Falobi Award for Excellence in HIV Prevention Research Community Advocacy was established to honour the life and work of Omololu Falobi and highlight the essential role of community advocacy in HIV prevention research.

This award is an important and ongoing legacy to Omololu and is recognition to his commitment and contribution to HIV prevention research advocacy.

Despite his untimely and tragic death in 2006, Omololu Falobi was a visionary leader that continues to inspire many people and projects.

He was a leading HIV/AIDS activist, an advocate for prevention research, and an exceptional journalist.

Omololu made enormous impact in Nigeria and beyond he nurtured and/or led campaigns related to prevention, treatment and research; won multiple awards nationally and internationally; and earned a tremendous reputation from all who had the privilege to work with him.

He established the Journalists Against AIDS in Nigeria (JAAIDS), co-created the Nigeria-AIDS eForum, co-founded the Nigerian HIV Vaccine and Microbicide Advocacy Group (NHVMAG), was an instrumental pioneer member of the Treatment Access Movement (TAM) Nigeria and a key leader of the African Civil Society Coalition on HIV and AIDS.

The African Microbicides Advocacy Group (AMAG) is proud to collaborate with the AIDS Vaccine Advocacy Coalition (AVAC), the Global Campaign for Microbicides (GCM), JAAIDS, NHVMAS and TAM - to coordinate this award process. Financial support for the Award comes from AMAG, AVAC, GCM, Family Health International (FHI) and NHVMAS, Open Society Institute in South Africa (OSISA) and UNAIDS,

THIS AWARD OF ACHIEVEMENT is intended to honour individuals who have shown leadership and commitment to HIV prevention research advocacy and to recognize the work of advocates who have inspired others in their commitment to HIV prevention.

The Nomination & Selection Process

\* Nominations must be made by nominee's colleagues and friends. We will not accept self-nominations.

\* Nomination forms and guidelines for recommendation letters to be sent to [omololufalobiaward@yahoo.com](mailto:omololufalobiaward@yahoo.com) by 31 JANUARY 2010

\* Review of nominations by Independent Review Panel (international panel made up of researchers, advocates, people living with HIV)

\* The recipient will be informed in February 2010, will receive a full scholarship to attend the M2010 conference and recognized at the closing Conference Closing Ceremony

The nomination form can also be accessed at <http://www.global-campaign.org/amag.htm>  
<http://www.avac.org/ht/d/sp/i/4345/pid/4345>

Co-chairs of the International Microbicides Conference 2010 have confirmed their commitment towards supporting this award with a full scholarship to the Conference for the Award Recipient.

**Award Planning Committee:**

Manju Chatani-Gada, African Microbicides Advocacy Group (AMAG & AVAC)

Mitchell Warren, AIDS Vaccine Advocacy Coalition (AVAC)

Katie West Slevin, Global Campaign for Microbicides (GCM)

Olayide Akanni, Journalists Against AIDS in Nigeria (JAAIDS)

Morenike Ukpog, New HIV Vaccine & Microbicide Advocacy Society (NHVMAS)

Mayowa Joel, Treatment Access Movement (TAM, Nigeria)

For more information, please write to:  
[omololufalobiaward@yahoo.com](mailto:omololufalobiaward@yahoo.com)

## ADVERTISERS' ANNOUNCEMENTS

## The 2nd SA TB Conference in Durban, South Africa

Dates: From 1 to 4 June 2010

The conference will focus on partnerships and how solidarity among the state, private sector and civil society at all levels and structures can increase access to services and prevent people dying from a curable disease.

Forging Strategic Partnerships to Fight TB and HIV is the theme for this Conference, which will build on the awareness and commitment made by 1657 people that contributed to the success of the 1st SA TB Conference in 2008.

TB knows no boundaries and affects all people in all walks of life. Join us at the 2nd SA TB Conference in Durban from 1 to 4 June 2010. Become an active partner and discover which piece of the puzzle you are that completes the picture of a world without TB.

The organisers invite abstract submissions for the 2010 Conference in the following three tracks:

- Track 1: Basic Science
- Track 2: Clinical, Epidemiological and Operational Research
- Track 3: Patient and Civil Society Mobilisation and Advocacy

Abstract submission and early registration closes on 21 January 2010.

Visit [www.tbconference.co.za](http://www.tbconference.co.za) for more information about submitting your abstract, or to register as a delegate.

## Farmer Voice competition

**Deadline for applications is: 29th January 2010.**

Have you developed a successful way of listening systematically to farmers?

If so

- Do you have experience other agencies could learn from?

- Do you want to learn from other agencies?

- Do you want access to additional resources and support?

You could be eligible for one of ALIne's Farmer Voice Innovation Awards

We aim to make 10 awards to organisations for innovations in managing farmer voice.

Award winners will receive:

- Recognition as an innovator in the field and exposure to influential agencies and donors
- An honorarium to write up the innovation and share it with a sector-wide audience

• Peer learning opportunities, to share learning about emerging best practices with other innovators and help shape the wider debate

• Technical input from ALIne to help develop innovations further

• 2 Award winners will be offered a free, independent and rigorous evaluation to assess impact and learn more about what works.

For more information please visit [www.farmer-voice.org](http://www.farmer-voice.org)

Awards will be announced on 25th February 2010.

## JOBS

## Chief Executive Officer, Nairobi, Kenya

Plant Resources of Tropical Africa (PROTA) is a long-term, international and interdisciplinary undertaking to build a high-quality information system on the 7,000 useful plants of Tropical Africa. It is a partnership of 11 scientific institutions (7 in Africa, 3 in Europe and 1 in South-East Asia) and has a legal identity as an International not-for-profit Foundation. PROTA is hosted by the World Agroforestry Centre (ICRAF) in Nairobi, Kenya.

The position: ICRAF/PROTA seeks to recruit a candidate for the position of Chief Executive Officer for the Network Office Africa, reporting directly to the PROTA Board Chair and closely collaborating with the PROTA Network Office in Europe. He/she shall implement the policies of the Board in close consultation with the CEO of the Network Office Europe, and shall be responsible to the PROTA Board for the operation and management of PROTA in Africa and for ensuring that its programmes in Africa are properly developed and carried out in accordance with PROTA's mission and objectives. The activities of the Network Office Africa will substantially increase over time, as an increasing number of tasks and activities will be gradually transferred from the Network Office Europe to the Network Office Africa before the end of 2012.

Responsibilities:

- \* Represent the Board of Trustees as the legal representative of PROTA in Africa at its request and within the mandate given;
- \* Sign deeds, contracts and other legal documents necessary for the operation of PROTA in Africa, in accordance with the authority, specific or delegated, conferred to him/her by the Board of Trustees;
- \* Implement all the decisions of the Board of Trustees, that are applicable to the Network Office Africa;
- \* Ensure effective and

## XIII International AIDS Conference

18-23 July 2010

Vienna, Austria

Theme: Rights Here, Right Now

Abstract submission deadline: 10 February 2010

Registration is now open.

Website: [www.aids2010.org](http://www.aids2010.org)

org

1. Register Before 25 February to Avoid Late Fee Surcharge

2. Abstract Submissions: Deadline 10 February 2010

3. Abstract Mentor Programme: Deadline 3 February 2010

4. Global Village and

efficient operation of the PROTA Network Office Africa in Africa;

\* Assume the function of Executive Director of PROTA Africa (PROTA Chapter registered as INGO in Kenya), if requested to do so by the Board of PROTA Africa;

\* Shall within limits established by the Board of Trustees, be empowered to take such actions as shall be necessary for the attainment of objectives of PROTA.

\* Provide leadership to the PROTA network in Africa and manage the human, financial and physical resources of PROTA in Africa;

\* Facilitate and support the recruitment, selection and appointment of staff required for the operations of PROTA in Africa;

\* Contribute in close consultation with the head of the Network Office Europe to the development of new proposals and initiatives for funding by donors, and undertake further fund-raising actions;

\* Draft annual work plans and budgets and report on progress made to the Board of Trustees, regarding the PROTA activities in Africa;

\* Manage, report and account for funds allocated to the African network.

\* Develop proposals to the Board of Trustees for appropriate mechanisms for monitoring, evaluating and assessing the impact of PROTA's activities;

\* Expand the PROTA network to as many of the 47 target countries in Africa as possible.

\* Develop and strengthen partnerships with key partners in Africa.

\* Build the visibility and credibility of PROTA, both regionally and globally, in close consultation with the head of the Network Office Europe.

\* Recommend to the Board of Trustees consultants and fellows required for the operation of PROTA in Africa.

\* Act as the second secretary and ex-officio member of the meetings of the PROTA Board of Trustees.

Requirements and qualifications

\* A PhD in sciences, management, economics or in a closely related discipline;

\* At least ten years proven experience in programme design and implementation;

\* Fluency in English and a working knowledge of French;

\* Strong communication (written and oral) and interpersonal skills;

\* Strong computer skills;

\* Ability to travel extensively;

\* An effective planner and manager able to conceive and communicate a compelling strategic vision of PROTA in Africa;

\* A results-oriented, accountable and proactive leader who is able to represent PROTA to a wide range of stakeholders;

\* A self-motivated 'doer', able to work with autonomy and effectively with a team, in diverse cultural contexts, for collective success;

\* Demonstrated ability to network and raise significant funds for the organization;

\* An outstanding and demonstrated sense of personal integrity, high ethical standards and professional accountability.

Youth Programme Submissions: Deadline 10 February 2010

5. Workshop Submissions: Deadline 10 February 2010

6. Applications for Scholarships: Deadline 10 February 2010

7. Satellite Meeting and Exhibition Space Applications: Deadline 31 March 2010

8. Commercial Invitation

9. Red Ribbon Award Nominations: Deadline 28 February 2010

10. Join the AIDS 2010 Mailing List

Applications:

ICRAF/PROTA is an equal opportunity employer and offers a collegial and gender-sensitive working environment. The position is on international terms and will be for an initial period of one (1) year, renewable subject to six (6) months probation period, assessment of performance, continued relevance of the position and availability of resources. Applicants are invited to send a cover letter illustrating their suitability for the above position against the listed qualifications, competencies, skills, salary expectations, vacancy announcement source together with a detailed curriculum vitae with names and addresses of three referees, including telephone, fax numbers and email addresses. All correspondence should be addressed to the Human Resources Unit, World Agroforestry Centre (ICRAF), P.O. Box 30677, Nairobi, Kenya OR via email: [icrafhru\[at\]cgia\[.\]org](mailto:icrafhru[at]cgia[.]org). Applications will be considered until 29th January 2010 and should indicate "Application for Chief Executive Officer - PROTA" on their application letters and email submissions.

Only short-listed applicants meeting the above requirements will be contacted. We invite you to learn more about us at:

[www.worldagroforestrycentre.org](http://www.worldagroforestrycentre.org)

[www.prota.org](http://www.prota.org)