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New contribution to dossiers

Disease-resistant transgenic crops: priorities and strategies for the Caribbean

http://knowledge.cta.int/en/content/view/full/12028

by Paula F. Tennant, Latanya C. Fisher and Wayne A. McLaughlin

Traditionally, Caribbean agriculture has been dominated by the production of traditional export-oriented plantation crops and mixed farming. However, this situation is rapidly changing. Jamaica and the Dominican Republic have recently embraced transgenic crops and developed supporting policies for agro-biotechnology development. The University of the West Indies, St. Augustine and Mona campuses, in Trinidad and Jamaica, respectively, have also started biotechnology programmes which integrate research on non-traditional horticultural commodities, including new ornamental plant varieties and natural products from medicinal plants. At the regional level, CARICOM has focused its efforts on the development of a regional Biotechnology and Biosafety Policy and Strategy framework for cooperation and collaboration in biotechnology and biosafety. Transgenic virus resistance is the most advanced of the applications of biotechnology for the management of plant pathogens; the development of fungus- and bacteria-resistant transgenic plants has lagged behind. In Jamaica, work on improving virus disease resistance in papaya (*Carica papaya*), tomato (*Solanum lycopersicum*), pepper (*Capsicum annuum*) and citrus (*Citrus sinensis*), is underway and is at various stages of development. A brief summary of the individual projects and challenges is presented.

Creating an *Anthurium andraeanum* (Hort) knowledge industry in the Caribbean: Role of genetics research and IT

http://knowledge.cta.int/en/content/view/full/12026

by Pathmanathan Umaharan

Anthurium andraeanum (Hort) is a tropical ornamental species with enormous potential for Trinidad and Tobago and the Caribbean. Trinidad and Tobago has had a long history of cultivation of anthuriums. The University of the West Indies has created a knowledge cluster focusing on anthurium, with the view to spawn spin-off companies that can provide value-added opportunities for the Caribbean. The recent innovation in developing the first bacterial-blight-resistant cultivars will form the backbone for other developmental efforts that are underway towards developing bacterial leaf spot resistance, nematode resistance, bioengineering novel colours, improving vase-life and creating an e-commerce platform for direct marketing of anthuriums. A nurturing environment and a strong University-Enterprise-Policy partnership is required to support the evolution of such knowledge clusters.

Safeguarding biological diversity as part of the agricultural challenge of the 21st century

http://knowledge.cta.int/en/content/view/full/12025

by Jan Meerman, François Affholder, Stéphanie M. Carrière and Frédéric Bourg

Approximately 10,500 years ago, Man made his first attempts at agriculture and they proved successful, as it was possible to grow what he needed. However, there was a lot of trial and just about as much error. Mobility was limited, very limited by today's standards, and thus the choice of species to experiment with was limited to those that grew or were readily available, and not every species was suitable for domestication. The implication of this is that successful domestication efforts depended on a high level of available biodiversity! As trade developed, and agricultural biodiversity started to be exchanged, societies that had greatest access proved to be the most successful. The challenge we are facing in the coming decades is how to feed the world's hungry and make use of available agrobiodiversity. This is now more than ever one of the major objectives for the national and international scientific and development community, and society as a whole. Innovation is called for!

Mitigating the impacts of invasive alien species

http://knowledge.cta.int/en/content/view/full/12027

by Moses T.K. Kairo and Julien Lamontagne-Godwin

Invasive alien species (IAS) are responsible for serious ecological, economic and social problems in the world today. Indeed, the problem has been described as an 'immense, insidious and usually irreversible' one by the IUCN in 2000 and as 'the second biggest cause of ecological disintegration, second only to habitat loss' by Vitousek et al. in 1997. Effective mitigation efforts require a multi-dimensional approach encompassing political, economic, social and technical considerations addressing issues along the continuum from prevention to control. Thus, the development of robust policies – as well as scientific and technological solutions – is crucial to the success of mitigation efforts. To this end, the last two decades have seen a growing number of increasingly interlinked international, regional and national political, scientific and technological initiatives that have resulted in significant outputs in terms of providing guidance relating to governance and implementation of mitigation measures. The importance of biodiversity conservation is making the IAS issue topical. In essence, IAS problems are set to be tackled more energetically and efficiently than ever before, and scientific/social research and technological innovation will continue to underpin the development of effective mitigation measures along the continuum from prevention to restoration.

CTA and partners

Finals of CTA/FARA/AGRA/RUFORUM/ANAFE/NPCA 2009/2010 Women and young professionals' science competition, July 19 – 20, Ouagadougou, Burkina Faso

http://knowledge.cta.int/en/content/view/full/12046

The CTA/FARA/AGRA/RUFORUM/ANAFE/NPCA 2009/2010 science competitions sought to identify, recognize and reward the hard work and excellence of young professionals and women scientists who are engaged in innovative and pioneering research and communicating the outputs (knowledge, technologies, approaches) to improve agricultural productivity and the livelihoods of rural communities. In total approximately 100 submissions were received for both competitions from which 41 top entrants were selected to develop their abstracts into full papers using standard guidelines. 27 top winners (18 young professionals and 9 women), will compete for the top five places in each category on July 19-20, 2010 prior to the presentation of the top awards during the 5th Africa Agriculture Science Week and FARA General Assembly on 19-24 July 2010, in Ouagadougou, Burkina Faso.

July launch of CTA/CCST/CARDI/UWI Caribbean-wide science and agriculture film and video competition

http://knowledge.cta.int/en/content/view/full/12055

Caribbean agriculture is underperforming and the region is finding it difficult to respond effectively to the multiple complex challenges; climate change, water scarcity, loss of biodiversity and high food imports. At the same time, the Faculty of Science and Agriculture of the University of the West Indies (UWI), St. Augustine Campus, recorded a 7% reduction in the intake of students for the BSc General Agriculture programme over the period 2004-2009. A Caribbean Agriculture and Science Film and Video Competition will be launched in July 2010 to promote the importance of science, technology and innovation for improving agricultural performance and supporting economic development. The awards ceremony will be held in July 2011. The competition encourages the participation of creative, technology savvy young professionals (persons 18-35 years) with a passion for communicating ideas and an interest in leveraging the full potential of science and technology for agricultural and economic development. The winning film or video pieces are expected to contribute to increasing public awareness and engagement in science, technology and innovation for overcoming the challenges facing Caribbean agricultural and rural development, and encouraging young professionals to consider training and careers in science and agriculture **(deadline: 31 October 2010).**

EU-LAC summit promotes cooperation on science

http://knowledge.cta.int/en/content/view/full/11961

The European Union, Latin American and Caribbean regions have agreed on the implementation of a joint initiative for research and innovation. On 18 May 2010 the EU-LAC Ministerial Forum on Science and Technology adopted the proposal for an EU-LAC Joint Initiative for Research and Innovation, put forward by the Senior Officials Meeting in Buenos Aires, on 25-26 February 2010. The initiative is intended to help make progress on the road to the EU-LAC Knowledge Area. It entails priorities for boosting bi-regional S&T cooperation and making high-level dialogue a permanent feature of the relationship. It is expected to strengthen cooperation and monitoring of

implementation. (Source: Council of the European Union, 18 May 2010)

2nd call for expression of interest to provide CTA's Selective Dissemination of Information (SDI) service

http://knowledge.cta.int/en/content/view/full/11612

The purpose of this call is to establish a shortlist of organizations that will be invited to tender for the provision of CTA's current awareness information service i.e. the Selective Dissemination of Information (SDI) service. The SDI service keeps African, Caribbean and Pacific (ACP) researchers in the field of agriculture and rural development abreast with the latest scientific and technical information relevant to their field of research by providing bibliographic references on specific subjects **(deadline: 31 July 2010).**

Developments

Gene from Japan for local maize

http://knowledge.cta.int/en/content/view/full/11985

Research has shown that the natto bacterium (Bacillus subtilis) has a gene that helps plants to cope with the stress of drought. The beneficial gene was discovered by the biotechnology firm Monsanto, and in a partnership of private and public players, the company has licensed it to national institutions in five countries to develop drought-tolerant maize varieties. The partners are supported by the Bill and Melinda Gates Foundation in a project known as Water Efficient Maize for Africa (WEMA) that is being carried out in South Africa, Mozambique, Uganda, Tanzania and Kenya. (Source: Daily Nation, 19 May 2010)

New GM policies coming soon

http://knowledge.cta.int/en/content/view/full/11983

A new set of policies governing commercial production and trade in genetically modified agricultural produce is set to come into force in East and Southern Africa. The process of formulating the guidelines, which will also be applied for emergency food aid containing genetically modified organisms that enters the region, is being spearheaded by the Common Market for Eastern and Southern Africa (COMESA) through a specialized agency responsible for trade in agricultural commodities, the Alliance for Commodity Trade in Eastern and Southern Africa (Actesa). (Source: The East African, 18 May 2010)

Ugandan scientists develop resistant banana

http://knowledge.cta.int/en/content/view/full/11996

Scientists in Uganda have developed genetically modified bananas that show promising resistance to a deadly banana wilt disease. More than US$200 million has been lost to banana Xanthomonas wilt (*BXW*) infestation since 2001. The disease has also been reported in Burundi, the Democratic Republic of Congo, Kenya, Rwanda and Tanzania. Now, the banana plants modified with two genes derived from sweet peppers (*Capsicum annuum*) show resistance to the disease caused by the bacterium *Xanthomonas campestris pv. musacearum*. Even if BXW-resistant bananas prove successful in field trials, the absence of a GM law in Uganda will hamper farmers' access to the technology. (Source: AFROL News, 15 June 2010)

North-South conservation divide: 'Show me the money'

http://knowledge.cta.int/en/content/view/full/12004

Developing countries rich in plants and animals but poor in financial and technical resources refused to make binding commitments to halt the unraveling of the planet's biological infrastructure at the close of a major meeting at the U.N.'s African headquarters in Nairobi. Rates of biodiversity loss - as measured by reduction in abundance and extent of species - increased in most parts of the world, according to the Global Biodiversity Outlook 3 (GBO 3) released at the start of the meeting. The specific details of the 2020 target were contested and watered down so they were somewhat less ambitious than what the GBO 3 and the CBD's own expert and technical committee had advised. The Strategic Plan calls for a 50-fold increase in funding. Delegates from developed countries objected saying, they did not have the authority to make such large financial commitments. (Source: IPS, 31 May 2010)

Biosafety law translated in local languages of Burkina Faso

http://knowledge.cta.int/en/content/view/full/12005

Burkina Faso has embarked on a programme to create awareness on the National Biosafety Law. The law has been translated into the three most commonly spoken

languages (Mooré, Jula and Gulmacema) in the cotton-growing areas. The first phase of translation has been achieved and the National Biosafety Authority is planning to reach out to farmers with the documents and to train them on the existing provisions regarding the use and management of genetically modified organisms (GMOs) in the country. At the moment, 6000 translated copies (2000 per language) consisting of summaries of essential extracts of the act have been printed and they will be distributed to farmers through extension services. (Source: Crop Biotech Update, 29 May 2010)

Oceans choking on CO2, face deadly changes: study

http://knowledge.cta.int/en/content/view/full/12011

The world's oceans are virtually choking on rising greenhouse gases, destroying marine ecosystems and breaking down the food chain - irreversible changes that have not occurred for several million years, a new study says. The changes could have dire consequences for hundreds of millions of people around the globe who rely on oceans for their livelihoods. The Australia-U.S. report recently published in Science magazine studied 10 years of marine research and found that climate change was causing major declines in marine ecosystems. (Source: Reuters, 17 June 2010)

CarboAfrica deciphers the carbon cycle in Africa

http://knowledge.cta.int/en/content/view/full/12010

African ecosystems apparently absorb more carbon than they emit. This observation is one of the main results of the EU CarboAfrica project. For more than three years, with the participation of CIRAD, CarboAfrica looked into the continent's CO2 cycle. The knowledge acquired provides African countries with valuable clues to help them in international climate talks. The first results suggest that the continent's ecosystems store more carbon then they release. This is good news. However, Africa is, and will undoubtedly continue to be, the zone worst affected by global warming, for ecological and above all socioeconomic reasons. CIRAD coordinated the project's sixth working group, whose aim was to assess the potential for sequestrating carbon through clean development mechanisms (CDMs), and the possibility of reducing emission through deforestation (REDD). (Source: CIRAD, 9 June 2010)

East Africa: Traditional seeds vital for climate change adoption

http://knowledge.cta.int/en/content/view/full/12008

The continued use of modern seed varieties by small-scale farmers could eventually lead to the loss of traditional varieties that are more resilient to climate change. According to new research findings, indigenous communities in developing countries who lack adequate mitigation measures against the challenges of climate change are the most affected. The study was conducted by the International Institute for Environment and Development (IIED), in collaboration with several organizations in Kenya, China, India and Panama. (Source: All Africa, 24 May 2010)

UNECA launches an African technology network to generate value from research and development

http://knowledge.cta.int/en/content/view/full/12018

UNECA (UN Economic Commission for Africa) has launched a network of experts and institutions involved in technology development and transfer in Africa, composed of leading African agencies responsible for technology development, adaptation, diffusion and transfer. The African Technology Development and Transfer Network, as the initiative is called, aims to 'generate economic and social value' from Research and Development (R&D) outputs; facilitate technology adaptation, diffusion and commercialization; and encourage investment in R&D. The network will promote learning, exchange of experiences and collaboration across countries and institutions. (Source: African Press Organization, 18 June 2010)

FAO launches RUST SPORE to step up global surveillance of *Ug99* strain

http://knowledge.cta.int/en/content/view/full/12016

FAO has launched a new website to track the advance of *Ug99*, the devastating strain of wheat stem rust disease and other wheat rusts amid concern the fungus is on the march across Africa and could head toward South Asia. The aim of 'RUST SPORE' is to deliver up-to-date information on the status of wheat stem rust, monitor important new strains of the disease and synthesize and provide easy access to reliable data on a global scale. Rust SPORE information system is presently focusing on stem rust and *Ug99*, but will be expanded to incorporate other wheat rust threats in the near future. (Source: FAO Media Centre, 2 June 2010)

Virulent new strains of *Ug99* stem rust, a deadly wheat pathogen

http://knowledge.cta.int/en/content/view/full/12020

Four new mutations of *Ug99*, a strain of a deadly wheat pathogen known as stem rust, have overcome existing sources of genetic resistance developed to safeguard the world's

wheat crop. Leading wheat experts from Australia, Asia, Africa, Europe and the Americas, who met in St. Petersburg, Russia for a global wheat event organized by the Borlaug Global Rust Initiative, said the evolving pathogen may pose an even greater threat to global wheat production than the original *Ug99*. The new 'races' have acquired the ability to defeat two of the most important stem rust-resistant genes, which are widely used in most of the world's wheat-breeding programmes. (Source: ScienceDaily, 28 May 2010)

Selected publications

Pulling agricultural innovation and the market together - working paper 215

http://knowledge.cta.int/en/content/view/full/11941

by the Center for Global Development, 21 June 2010.

This paper stimulates a dialogue on what new approaches might be needed to meet these needs and how innovative funding mechanisms could play a role. In particular, could 'pull mechanisms,' where donors stimulate demand for new technologies, be a useful complement to traditional 'push mechanisms,' where donors provide funding to increase the supply of research and development (R&D). With a pull mechanism, donors seek to engage the private sector, which is almost entirely absent today in developing country R&D for agriculture, and they pay only when specified outcomes are delivered and adopted.

The changing face of EU-African cooperation in science and technology

http://knowledge.cta.int/en/content/view/full/11943

by the Directorate-General for Research International Cooperation (INCO), 2010

Africa is a continent with a great pool of untapped scientific talent. The brain power is there, but the means to translate it into scientific input for socio-economic development need further enhancement. This brochure outlines the development of European S&T cooperation with Africa over the recent past. It describes the learning process INCO went through to get to point where we are now. It illustrates the link between the political framework, the commitments, the tool kit of mechanisms available and the action on the ground.

Global Biodiversity Outlook 3

http://knowledge.cta.int/en/content/view/full/11926

by the Convention of Biological Diversity, 21 May 2010

Global Biodiversity Outlook is the flagship publication of the Convention on Biological Diversity. Drawing on a range of information sources, including national reports, biodiversity indicators information, scientific literature, and a study assessing biodiversity scenarios for the future, the third edition of *Global Biodiversity Outlook (GBO-3)* summarizes the latest data on status and trends of biodiversity and draws conclusions for the future strategy of the Convention.

Tripling crop yields in tropical Africa

http://knowledge.cta.int/en/content/view/full/11945

by Pedro A. Sánchez, The Earth Institute, Columbia University, 2010

Between 1960 and 2000, Asian and Latin American food production tripled, thanks to the use of high-yielding varieties of crops. Africa can follow suit, but only if depletion of soil nutrients is addressed. The problem is particularly acute in tropical Africa, where constant or recurrent food shortages affect over 30% of the population — over 260 million people. Low levels of agricultural productivity are a key cause of hunger in this part of the world. Decades of farming without adequate fertilizer and manure have stripped the soils of the vital nutrients needed to support plant growth. Replenishing soil fertility, by using mineral and organic fertilizers, is therefore the primary biophysical requirement for increasing food production in tropical Africa. Many studies have shown that, once this fundamental deficiency has been addressed, the road to food security is open.

Science and Technology enterprises in Africa

http://knowledge.cta.int/en/content/view/full/11950

By the Academy of Sciences for the Developing World, 2010

The report of published proceedings forms the basis of the 2009 Fourth Young Scientists' Conference in Africa hosted by TWASS-ROSSA and the African Academy of Sciences Secretariat in Nairobi, Kenya (7-9 December 2009). The conference discussed the role the young scientists play in S&T enterprises in empowering Africa economically and ensuring sustained growth and development for future generations.

Enhancing food security in Africa through science, technology and innovation

http://knowledge.cta.int/en/content/view/full/11930

by the United Nations Conference on Trade and Development, 19 May 2010

This Technology and Innovation Report 2010 looks at how the current trend towards declining agricultural productivity in many developing countries can be reversed through building what are called agricultural innovation systems, that provide the

enabling framework not only for the adoption of existing technologies and the development of new ones that are suited for African needs, but also focus on improving agricultural infrastructure, services and land management practices, new marketing networks and partnerships, novel credit schemes and a coherent institutional framework to support agricultural development in the long run. The report discusses current and future developments that are likely to affect agricultural production and food supply, and explores the role of technology and innovations in the quest to achieve sustainable agriculture production on one hand and facilitate access to food for the poorest populations on the other.

Jobs for ACP scientists

Quantitative geneticist

http://knowledge.cta.int/en/content/view/full/11920

The International Maize and Wheat Improvement Center (CIMMYT) is looking for an innovative, impact-oriented quantitative geneticist with a vision for applying the new genotyping and bioinformatics tools that are revolutionizing crop improvement worldwide. As a member of the CIMMYT Crop Research Informatics Laboratory (CRIL) you will collaborate with CIMMYT's elite maize and wheat-breeding teams, as well as with partners in advanced laboratories, seed companies, and national research programmes worldwide, to improve the lives of farmers and consumers in the developing world who depend on maize and wheat for livelihoods and food security. The successful applicant will be based at CIMMYT headquarters near Mexico City, but will work closely with our programs in Asia, Africa, and Latin America. **(deadline: 16 August 2010)**

Fellowships and grants

IDRC Internship Awards

http://knowledge.cta.int/en/content/view/full/11960

IDRC's Internship Awards provide exposure to research for international development through a programme of training in research management and grant administration under the guidance of IDRC programme staff. Internships are designed to provide hands-on learning experiences in research program management - in the creation, dissemination and utilization of knowledge from an international perspective. The interns will undertake a programme of research on the topic submitted when competing for the internship award during a part (often around 50%) of their time. For approximately 50% of the remainder of the time, the selected candidates will be expected to provide support to management and programme staff (**deadline: September 12, 2010)**.

TWAS - AAS and Microsoft in joint initiative to award grants

http://knowledge.cta.int/en/content/view/full/11917

Microsoft Research in partnership with The Academy of Sciences for the Developing World (TWAS) and The African Academy of Sciences (AAS) has established the TWAS-AAS-Microsoft Award for Young Scientists for the three-year period 2009-2011. The prize has been established to recognize young scientists working and living in Africa whose research in computer science has had, or could have, a positive impact in the developing world. Nominations will be submitted to TWAS and will include details of the candidate's achievements in relation to the prize, together with the names of two referees.

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