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July 2012 newsletter

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## New dossier and lead articles

### INNOVATIONS IN TROPICAL FOOD PROCESSING

Tropical fruits offer a significant opportunity for agricultural and economic growth for many ACP countries. However, while production, processing and marketing of some better known fruits such as citrus, mangoes, avocados and bananas, have benefitted from significant investments including in research and development, primarily to service export markets; this has not been the same for many other tropical fruits. This dossier comprises two lead articles by ACP and EU experts and provides links to relevant documentary resources on tropical fruit processing. It seeks to highlight the challenges and opportunities in adding value to tropical fruits and provides policy guidelines to support industry development.



### Determinants of organisational and institutional innovation in the horticultural sectors of ACP countries

By Ludovic Temple, CIRAD, France



In this article, Temple explains how the development of the horticultural sector and the determinants of innovation are linked. For major tropical fruits that are traded internationally; foreign investment, research and development and technological advances e.g. refrigerated storage as well as improvements in logistics have been critical. International standards have also driven innovation, and emerging standards such as organic and fair trade are creating new market opportunities. While the benefits have accrued to large-scale well-organized producers and other actors along the value chain, small family-scale fruit production and processing enterprises have

not been able to meet the requirements of large-scale retailers. They are also reluctant to take the risks of investing in new technology, such as introducing novel disease-resistant varieties. There is still a need to accelerate the adoption of new technologies and improve coordination to their benefit.

[Click to read the article.](#)

### Adding value to tropical fruits - The case of the Jamaican ackee industry: lessons for policy and practice

By Machel A. Emanuel and Nouredine Benkeblia, University of the West Indies, Jamaica



In this article, the authors demonstrate the challenges faced in developing the Jamaican ackee (*Blighia sapida* K.D. Koenig) industry. Ackee is well accepted by Jamaicans but not well known in many other countries; it has the potential to contribute to the growth of the Jamaican economy if the industry can increase its penetration of international export markets.

However, the ackee contains a toxic compound, hypoglycin A, which poses a challenge in meeting food safety requirements. There are also other challenges hindering industry development including availability of suitable processing variety in adequate quantities. Research

and technology development have supported industry development but challenges remain.

In 1972, the US Food and Drug Administration effectively banned the imports of ackee from Jamaica. An upper limit of 100 mg/kg of hypoglycin A was set. In 1990 an accurate detection procedure was developed, allowing importation of tested produce into the USA to begin again. Nevertheless, in 2005, the exportation of ackee to the US market was again suspended for almost one year for technical reasons.

Presently, only certified agro-processors with food safety controls in place can export canned ackee that will not be automatically detained. Further growth of the industry needs a concerted effort of scientists, engineers, policymakers, investors and entrepreneurs including farmers to support this export-oriented industry which remains heavily dependent on maintaining the confidence of the overseas consumers. Tropical fruit industry expansion in ACP countries does not rely only on coordinating and improving production and logistics efficiencies but requires a systems approach.

[Click to read the article.](#)

Visit the homepage of the new dossier on K4D: [Innovations in tropical food processing](#)

Visit the homepage of relevant dossiers on K4D: [Fruits](#), [Vegetables](#) and [Reducing post-harvest losses](#)

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## New dossier: Innovations in tropical food processing - Selected resources

### Processing of fresh-cut tropical fruits and vegetables: a technical guide

This 2012 technical guide by the FAO, reviews from a theoretical and practical perspective the critical issues that must be addressed if fresh-cut products are to meet consumer and market demand for convenience, quality and safety. It provides a case study on fresh-cut processing in Thailand, and describes, the fresh-cut processing of selected fruits and vegetables produced in that country. It should be of practical value, to small processors, trainers, extension workers and non-governmental organizations.

[knowledge.cta.int/en/content/view/full/16396](http://knowledge.cta.int/en/content/view/full/16396)

### Identification of problems in processing of underutilized fruits of the tropics and their solutions

Production and post harvest handling procedures associated with underutilised fruits practised in tropical regions perpetuate heavy losses, while inadequate infrastructural facilities cripple marketing prospects. Processors are faced with high production costs, inadequate supplies of desired quality raw material and the high cost of packaging. Problems are faced when attempts are made to meet quality standards stipulated by sophisticated markets. Solutions to these problems lie in the establishment of organized systems of production and the introduction of suitable post harvest handling procedures. Research and development inputs are necessary with regard to selection and breeding of varieties suitable for specific processing purposes, product development, storage, etc.

[knowledge.cta.int/en/content/view/full/16397](http://knowledge.cta.int/en/content/view/full/16397)

### Industrial high pressure processing of avocado products: emerging trends and implementation in new markets

High-pressure processing (HPP) technology emerged as a post-harvest, post-packaging technique for high-value avocado products in the late 1990s. The North American avocado processing industry was the main drive for this innovative technology high-value propositions such as fresh avocado pulp or guacamole in both Mexico and the USA. The market trend towards products that can be labelled as 'natural', 'minimally processed', 'with no artificial ingredients' and a clean label pushed the level of its implementation. This, together with the evolution in the technology and the improvement of HPP industrial equipment – which in the beginning of 2011 were 35% more productive and cost effective than those of 2007, or up to 50% when compared to those of 2005 – allowed HPP systems to cross borders and broaden their utilisation outside North America.

[knowledge.cta.int/en/content/view/full/16417](http://knowledge.cta.int/en/content/view/full/16417)

### High pressure processing (HPP): novel technology for preserving avocado slices

The objective of this research was to study the effect of high pressure processing (HPP) on the quality, physiology and microstructure of avocado slices. Avocado slices were subjected to HPP treatment with pressures of 200 to 600 MPa and durations of 3-10 min. The samples were examined immediately after treatment to evaluate changes in colour profile, polyphenoloxidase (PPO) activity, and changes in microstructure, respiration rate and ethylene production measured immediately after treatment. Flesh colour was affected to some extent, with L (lightness) and C (chroma) values decreasing after HPP treatment. However, these changes were not evident to the eye. HPP dramatically reduced respiration rate and ethylene production 1 hour after treatment, and, after 17 hours at 20°C, almost complete elimination was observed after treatment at higher pressures. HPP was found to increase PPO activity and activity increased with higher pressure exposure. Microscope observation (Cryo-SEM) showed changes in the structure of the cell wall, disruption of the cellular network and coalescence of oil vesicles at 600 MPa.

The results of this study have shown that HPP has dramatic and potentially beneficial effects in terms of reducing the respiration rate and ethylene production of avocado slices. Effects on colour, while measurable, were not readily apparent to the eye. Further work is required to examine the effects on shelf life of avocado slices.

[knowledge.cta.int/en/content/view/full/16418](http://knowledge.cta.int/en/content/view/full/16418)

### Quality of Guava and Papaya Fruit Pulp as Influenced by Blending Ratio and Storage Period

Guava and papaya are the most widely grown commercial fruits of central India. Both the fruits are nutritive and may be used for processing. The analysis of organoleptic characters (i.e., colour, flavour, texture, taste and overall acceptability) and qualitative characters (i.e., TSS, pH, acidity, ascorbic acid content) of guava and papaya fruits was conducted on fresh fruit, prepared pulp and mixed pulp. During the storage of fruit pulp at low temperature (6±1°C), the decrease in overall acceptability of both the pulp was observed with increase in storage period. However, blending of both the pulp in different ratios influenced the organoleptic characters as well as the qualitative characters of the blended pulp.

[knowledge.cta.int/en/content/view/full/16420](http://knowledge.cta.int/en/content/view/full/16420)

### Growing Mali's Mango Exports: Linking Farmers to Markets through Innovations in the Value Chain

The key innovation that allowed Mali to overcome obstacles arising from its situation as a landlocked country and secure

access to this market was the testing and implementation - through a partnership with private operators - of a multi-modal transportation system for the export of fresh produce that would provide an alternative to air freight. Thanks to project intervention, the feasibility and profitability of using refrigerated containers all the way to the destination market in Europe, with a combination of road, rail and sea freight, was demonstrated. This innovation basically opened the way to accessing the large and growing market of sea-freighted export of perishables. This new means of transport is also good from an environmental point of view by drastically reducing the carbon foot print resulting from this trade. Once the initial innovation was tested and validated economies of scale could be achieved and the size of the potential market for Malian producers and exporters of mangoes changed dramatically. Creating the linkages between farmers and this market required the piloting of a new and stronger supply chain that has in turn brought innovative practices upstream and downstream.

[knowledge.cta.int/en/content/view/full/16415](http://knowledge.cta.int/en/content/view/full/16415)

### **Optimization of processing parameters for cloudy passion fruit juice processing using pectolytic and amylolytic enzymes**

The effects of Pectinex Ultra SP-L concentration, Amylase AG XXL concentration, incubation temperature, pH and incubation time on juice yield, turbidity and viscosity of cloudy passion fruit juice were studied. Enzyme-treated passion fruit pulp sample showed increase in juice yield and turbidity with reduction in viscosity. Response Surface Methodology (RSM) was employed to optimize the hydrolysis conditions for production of cloudy passion fruit juice using enzymatic hydrolysis. The coefficient of determination (R<sup>2</sup> values) for juice yield, turbidity and viscosity were greater than 0.900. Statistical analysis showed that Pectinex ultra SP-L concentration, Amylase AG XXL concentration, incubation temperature, pH and incubation time had effect at linear, square and interactive level on yield, turbidity and viscosity. Under the optimum conditions, juice yield extracted from enzyme treated passion fruit pulp was 95.02%, with turbidity 724 NTU and viscosity 1.84cP corresponding to the increase in yield and turbidity by 23% and 31.63% respectively with 0.56 cP decrease in viscosity.

[knowledge.cta.int/en/content/view/full/16405](http://knowledge.cta.int/en/content/view/full/16405)

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## **CTA S&T Programme Updates**

### **Update – Announcement of semi-finalists**

#### **CTA/FARA/IFS/ANAFE/RUFORUM/NEPAD/AGRA**

#### **3<sup>rd</sup> Africa Wide Women and Young Professionals in Science Competitions**

The Expert panel for the 3<sup>rd</sup> Africa wide science competitions has selected the semi-finalists from among the 316 abstracts received in response to the calls launched in May 2012. During the second Expert Panel meeting which took place at FARA Secretariat in Ghana from 12-14 July 2012; 55 abstracts (26 for Women and 29 for Young Professionals in Science) were chosen using the established criteria; logic (10%), content (20%), communication (20%), impact (20%), innovation (15%) and originality (15%). A complete list of all the semi-finalists, their research topics and country of origin can be downloaded. All semi-finalists and other unsuccessful entrants have been informed of the outcomes of the selection process.

The next stage of the competitions is the Scientific Writing, Communication and Policy Advocacy workshop which will be held for semi-finalists in conjunction with the 3<sup>rd</sup> RUFORUM biennial conference 'Partnerships and Networking for Strengthening Agricultural Innovation' from 24-28 September 2012 in Uganda. The semi-finalists were required to submit a draft of their full paper based on the extended abstract that was evaluated by the expert panel. The draft paper had to be submitted on or before 31 August 2012 to [scicom2012@cta.int](mailto:scicom2012@cta.int) with a copy to [agsci\\_award@fara-africa.org](mailto:agsci_award@fara-africa.org). The paper guidelines have been provided to all semi finalists. The draft papers will be reviewed by the experts to confirm participation in the Uganda workshop. They will also be considered during the training workshop.

[Get the list and guidelines here.](#)

CTA and its partners, FARA, IFS, ANAFE, RUFORUM, NEPAD Agency and AGRA appreciate the contributions of all African women and young professionals in science who participated in the first round of the 3<sup>rd</sup> Africa-wide Women and Young Professionals in Science Competitions. Reading all the abstracts was enriching and the consortium regrets that we could not have accommodated more semi-finalists.

### **CTA – Supporting Dairy Sector Development**

CTA recently identified a team of consultants to lead a project to review established practice and assess opportunities to improve the reproductive performance of smallholder dairy cows in the context of sub-Saharan Africa. This also includes a technical and economic feasibility of oestrus synchronization in smallholder dairy cows kept under Ethiopian conditions. The lead consultant, Dr Alastair Gavin Paterson, and his assistant Mr. Louis le Roex of Paterson Agri-Services, South Africa were chosen for the assignment. The project includes two lots (Lot A and Lot B).

**Lot A:** *Opportunities to improve the reproductive performance of smallholder dairy cows in Africa.*

**Lot B:** *Technical and Economic Evaluation of Oestrus synchronization in Ethiopia.*

Professor Arthur Lishman, a top reproductive physiologist in South Africa is also an advisor to the consulting group. Given the extensive knowledge of the team on reproductive physiology and the realities of the dairy sector in Africa, CTA is confident that this project will contribute to improving the performance of smallholder dairy cows and the wider dairy industry in sub-Saharan Africa as well as provide lessons for policy and practice in the wider ACP region.

[knowledge.cta.int/en/content/view/full/16466](http://knowledge.cta.int/en/content/view/full/16466)

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## UNEP report warns ecological foundations that support food security are being undermined

[knowledge.cta.int/en/content/view/full/16351](http://knowledge.cta.int/en/content/view/full/16351)

A June 2012 report from the United Nations Environment Programme (UNEP), *Avoiding Future Famines: Strengthening the Ecological Basis of Food Security through Sustainable Food Systems*, finds that food security must embrace the environmental services nature provides if the world is to feed its growing population. Inefficiencies along the food delivery chain further complicate the challenge, and the report highlights that an estimated one-third of food produced for human consumption is lost or wasted, amounting to 1.3 billion tons per year. The debate on food security so far has largely revolved around availability, access, utilization and stability as the four pillars of food security, barely touching on the resource base and ecosystem services that prop up the whole food system. The report aims to increase the focus on these crucial environmental aspects, which are being undermined by overfishing, unsustainable water use and other human activities. It also frames the debate in the context of the Green Economy, calling for food production and consumption practices that ensure productivity without undermining ecosystem services.

(UNEP News Centre, 20/6/2012)

## Sustainable Agriculture Initiative (SAI) Platform

[knowledge.cta.int/en/content/view/full/16383](http://knowledge.cta.int/en/content/view/full/16383)

Food industries are the biggest purchasers of agricultural raw materials. In order to rely on a constant, increasing and safe supply of agricultural raw materials, these must be grown in a sustainable manner. In 2002 Nestlé, Unilever and Danone created the [Sustainable Agriculture Initiative \(SAI\) Platform](#), a non-profit organization to facilitate sharing, at precompetitive level, of knowledge and initiatives to support the development and implementation of sustainable agriculture practices involving the different stakeholders of the food chain. The SAI Platform today counts over 30 members, which actively share the same view on sustainable agriculture seen as a 'productive, competitive and efficient way to produce agricultural products, while at the same time protecting and improving the natural environment and social/economic conditions of local communities'. Among the latest services and deliverables produced, the SAI Platform published [Principles and practices for the sustainable production of arable and vegetable crops](#), [Principles and Practices for the sustainable production of Coffee, Fruit and Dairy](#); a [Benchmark Study of Agriculture Standards](#) and a [Short Guide to Sustainable Agriculture](#).

## Ingredients, flavours, fragrances and synthetic biology: case studies by the ETC group

[knowledge.cta.int/en/content/view/full/16473](http://knowledge.cta.int/en/content/view/full/16473)

The world's largest producers of food ingredients, flavours and fragrances are all now partnering with Synthetic Biology companies to develop biosynthetic versions of key high value natural commodities such as saffron, vanilla, vetiver and patchouli – replacing botanical sources. This case study illustrates recent developments in synthetic biology that could impact the \$22 billion global flavour and fragrance market and the livelihoods of producers of natural commodities. *These developments impact the sustainable use of biodiversity and fair and equitable sharing of benefits from the genetic resources that produce natural plant products*. No inter-governmental body is addressing the potential impacts of synthetic biology on the conservation and use of biodiversity and on the livelihoods of those who depend on agricultural export commodities (including high-value flavours, fragrances, essential oils, etc).

(ETC Group, 2012)

## NEPAD ABNE Food Safety Policy Brief No.3

[knowledge.cta.int/en/content/view/full/16459](http://knowledge.cta.int/en/content/view/full/16459)

The African Biosafety Network of Expertise (ABNE) is an Africa-based, Africa-led initiative established by the AU/NEPAD's Office of Science and Technology. This policy brief has details on the advancement of Genetic modifications research in Africa. It summarizes some of the GM crops that are at various experimental stages – laboratory, greenhouse or confined field trials – in different countries in Africa and the different genetic traits that are being introduced.

## Stronger corn? Take it off steroids, make it all female

[knowledge.cta.int/en/content/view/full/16379](http://knowledge.cta.int/en/content/view/full/16379)

A researcher at Purdue University, the United States, has taken maize off steroids and found that the results might lead to improvements in the crop. Mr. Burkhard Schulz, an assistant professor of horticulture and landscape architecture, wanted to understand the relationship between natural brassinosteroids – a natural plant steroid hormone – and plant architecture, specifically plant height. Mr. Schulz found that when maize loses the ability to produce brassinosteroids, it becomes a dwarf. Another feature, however, caught him off guard: the plants without the naturally occurring steroids could not make male organs – they had kernels where the tassels should be. That could be a cost-saving discovery for the seed industry. Hybrid seed producers must painstakingly remove the male pollen-producing tassels from each plant so that they do not pollinate themselves. Maize plants that produce only female organs would eliminate the detasseling step. Read the article at [Purdue News](#) (30/11/2011).

## Improving crops from the roots up

[knowledge.cta.int/en/content/view/full/16378](http://knowledge.cta.int/en/content/view/full/16378)

Scientists at the University of Nottingham, the United Kingdom, have shown that root growth can be altered in *Arabidopsis thaliana*, or thale cress, by controlling an important regulatory protein. The work was carried out by an international research team, led by scientists from the Plant Systems Biology Department in the life sciences research institute VIB and Ghent University in Belgium. The scientists modulated levels of the protein, transcription factor WRKY23, in plants, analysed the effects on root development and used chemical profiling to demonstrate that this key factor controls the biosynthesis of important metabolites called flavonols. Altered levels of flavonols affected the distribution of auxin, a plant hormone controlling many aspects of development, which resulted in impaired root growth. The results of the research can now be used



to produce economically valuable new plant lines that have an improved root system, making them better able to resist environmental changes which could lead to plant damage or poor yield.  
([University of Nottingham](#), 24/1/2012)

### **Farming Without Machines: A revolutionary agricultural technology**

[knowledge.cta.int/en/content/view/full/16474](http://knowledge.cta.int/en/content/view/full/16474)

Based on thirty-plus years of horticultural research, Ecology Action, a network of horticulturists, has ascertained that the 'GROW BIOINTENSIVE' method, in the hands of a skilled practitioner, can produce enough food to feed one person (on a vegan diet) with 372 m<sup>2</sup> of land. This contrasts with the 650 m<sup>2</sup> required to feed a vegan using fossil fuels, farm machinery and conventional chemical or organic techniques. Without fossil fuels and machines, the amount of land required (using conventional chemical or organic techniques) would be 1900-2600 m<sup>2</sup> (less than a quarter of a hectare). At present it takes 2900-5800 m<sup>2</sup> per person to produce an average US diet (including eggs, milk, cheese, and meat), using fossil fuels and mechanization and conventional chemical or organic techniques.

In addition to increasing caloric production by 200-400% per unit of area, the GROW BIOINTENSIVE method also significantly reduces water consumption (by 67-88%) and increases soil fertility (by 100%). The Grow Biointensive method is described in the book by John Jeavons *How to Grow More Vegetables*, which is essentially a detailed instruction manual covering basic topics such as soil preparation (by double digging), composting techniques, maximizing soil nutrients (by adding compost and growing crops that increase carbon and nitrogen content), water management, seed propagation, non-chemical pest control and companion planting (growing plants together that enhance each others' growth or discourage pests).  
([Dissident Voice](#), 23/7/2012)

### **Farming and biodiversity can coexist**

[knowledge.cta.int/en/content/view/full/16377](http://knowledge.cta.int/en/content/view/full/16377)

[This paper](#) points the way towards multi-functional agricultural systems that maintain agricultural productivity while simultaneously conserving biodiversity. In a new research paper titled *Intensive Agriculture Erodes ?-diversity at Large Scales*, Stanford University scientists show that low-intensity tropical agriculture can maintain regional species differences at levels similar to those of intact forest. Farms rely on birds for pollination, fruit dispersal and pest control and the presence of intact, biodiverse lands near a farm guarantees society certain natural benefits, including water purification and nutrient cycling. Costa Rica is already one of the first nations to adopt a 'payments for ecosystem services' (PES) scheme. Acknowledging the value of keeping undeveloped land near agricultural areas, the policy compensates farmers for leaving part of their lands out of production. The paper's new finding offers further support for the practice.  
([Stanford News Service](#), 22/6/2012)

### **Mulch type affects soil biological functioning and crop yield of conservation agriculture systems in a long-term experiment in Madagascar**

[knowledge.cta.int/en/content/view/full/16475](http://knowledge.cta.int/en/content/view/full/16475)

Conservation agriculture (CA) is rapidly developing in Madagascar but little is known about its effects on local soil functioning. To assess some of those effects, the authors investigated the effects of three CA systems and two levels of fertilization on soil functioning using nematofauna as indicator. Conservation farming (CA) effect on soil functioning was studied through nematodes. The authors compared the soil nematodes of three CA techniques to those of tillage (CT) and fallow (NF). They showed that nematodes as parameters discriminated the different systems well. The soil functioning of CA system was intermediated between that NF and CT system. The CA systems were able to support better/comparable plant yields compared to CT.

([ScienceDirect](#), 01/2012)

### **Innovative pellets to benefit organic farmers**

[knowledge.cta.int/en/content/view/full/16387](http://knowledge.cta.int/en/content/view/full/16387)

Researchers in Germany and Hungary have engineered novel pellets that are able to repel pests in a way that does not harm the environment and that could fertilise the plants. These pellets are made of cyanobacteria and fermentation residues from biogas facilities. The organic farming industry could stand to benefit from this innovative development since organic farmers stand to lose entire crops when pests lay their eggs on freshly planted vegetables. ([CORDIS](#), 11/4/2012)

### **CRFM scientific meeting assesses state of Caribbean fisheries**

[knowledge.cta.int/en/content/view/full/16360](http://knowledge.cta.int/en/content/view/full/16360)

The Caribbean Regional Fisheries Mechanism's (CRFM) scientific body [evaluated major fisheries](#) in the region to determine whether natural fish populations remain healthy and where fisheries management controls are necessary. The eighth annual Scientific Meeting was held 20-30 June 2012, in Kingstown, St. Vincent and the Grenadines. Fisheries scientists from 12 of 17 CRFM member States participated. The Meeting considered a subregional management plan for flying fish in the Eastern Caribbean and also tested new data analysis and decision-making tools that could allow the region's scientists a broader data set for evaluations. Among other things, the new tools are intended to take into account risks posed by climate change and to better assess potential impact of proposed management measures on the well-being and livelihoods of affected communities.  
([News and excerpt from IISD SIDS Policy&Practice](#), 30/6/2012)

### **'Too Big To Ignore': A global partnership for small-scale fisheries research**

[knowledge.cta.int/en/content/view/full/16476](http://knowledge.cta.int/en/content/view/full/16476)

'[Too Big to Ignore](#)' is a new research network and knowledge mobilization partnership to promote and revitalize small-scale

fisheries in Newfoundland and Labrador, Canada, and around the world. The first goal of the network is to enhance the understanding of the real contribution of small-scale fisheries to food security, nutrition, sustaining livelihoods, poverty alleviation, wealth generation and trade, as well as the impacts and implications of global change processes such as urbanization, globalization, migration, climate change, aquaculture, and communication technology on small-scale fisheries. The second goal is to create an innovative and interactive web platform, a Small-scale Fisheries Information System (SFIS), for global and local analysis of small-scale fisheries and their contributions to the broader society. Currently, the characteristics of small-scale fisheries are difficult to capture because of the lack of official statistics, even though small-scale fisheries account for about 90% of the 560 million people who depend on fisheries.

### **Common Market for Eastern and Southern Africa (COMESA) to establish an Innovation Council**

[knowledge.cta.int/en/content/view/full/16356](http://knowledge.cta.int/en/content/view/full/16356)

Ministers responsible for Science, Technology and Innovation in the COMESA region have recognized the critical urgency of putting in place mechanisms for harnessing and mobilizing existing knowledge from around the world, and of doing this in a structured manner that benefits all Member States. In this regard, the Ministers have agreed to establish a COMESA Innovation Council. The Council should be made up of eminent personalities drawn from academia, business and government that can use their stature, experience and knowledge, and their repertoire of contacts. The primary responsibility of the Council is to provide advice to Member States relating to existing and new knowledge and innovations, and the best ways of applying the knowledge and innovations in the Member States. ([COMESA](#), 7/2012)

### **Nigeria to fund 'demand-driven' research**

[knowledge.cta.int/en/content/view/full/16359](http://knowledge.cta.int/en/content/view/full/16359)

The Tertiary Education Trust Fund (TETFUND) in Nigeria has set aside 3 billion nairas to fund research institutions in order to promote demand driven research. The grants will be awarded to selected tertiary institutions to help them build the appropriate capacity and infrastructure to conduct the 'demand-driven' research projects. ([University World News](#), 22/7/2012)

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### **West and Central African research under the microscope**

[knowledge.cta.int/en/content/view/full/16358](http://knowledge.cta.int/en/content/view/full/16358)

Research remains the poor relation of universities south of the Sahara, in particular those in West and Central Africa, [University World News](#) reports. This finding was repeatedly and bitterly stated at a forum, 'Strategies for Sustainable Financing of University Research in West and Central Africa', held in Dakar, Senegal, from 2-4 July 2012. This state of affairs is in sharp contrast to some countries in East and Southern Africa, which have been able to survive research-wise and benefit from the help of donors, according to the forum. The reason given for the relative success of universities in East and Southern Africa was that their countries had paid attention to research at an early stage in their investment efforts. By contrast, in West and Central African countries and some others on the continent, the share of gross domestic product spent on research is only 0.3%. ([University World News](#), 22/7/2012)

### **Regional Centre for Mapping or Resources for Development (RCMRD) Data Centre**

[knowledge.cta.int/en/content/view/full/16355](http://knowledge.cta.int/en/content/view/full/16355)

The RCMRD Data Centre has a large LandSat Data Archive, dating back to 1972, for all African Countries. It is also a Reseller Agent in Africa for Digital Globe for QuickBird and WorldView 1/2 high-resolution satellite imagery. The Centre also supplies data from GeoEye (GeoEye 1/2, Ikonos & Orbview Imagery), SPOT Image (SPOT 2.5m, SPOT 5m & SPOT 10m), USGS (Landsat MSS, Landsat TM & Landsat ETM+) amongst other active and passive satellite imagery products. Datasets for Africa archived at the Centre are available at subsidized rates. Other low resolution imagery datasets (90m SRTM, NOAA, MERIS, MODIS), scanned maps and vector data for Africa are also available. The centre in collaboration with European Space Agency (ESA) and EUMESAT has established a facility for direct satellite reception for MERIS, MODIS, NOAA and EUMESAT (Second Generation Meteosat data). These datasets amongst others can be accessed online via: [www.rcmrd.org](http://www.rcmrd.org).

### **The CASCADE project: Making drylands more resilient by studying catastrophic shifts**

[knowledge.cta.int/en/content/view/full/16357](http://knowledge.cta.int/en/content/view/full/16357)

Resilience of landscapes is sometimes stretched to a tipping point and adverse changes then follow quickly. At the moment, little is known about the connection between environmental stresses and catastrophic shifts. [CASCADE](#) will investigate a range of dryland ecosystems in southern Europe to study a range of physical and socio-economical drivers and obtain a better understanding of sudden shifts in drylands that may lead to major losses in biodiversity and concomitant ecosystem services. By focusing on vulnerable drylands as the target ecosystems, it builds further on existing knowledge regarding shifts in these ecosystems. CASCADE will improve our understanding of the biogeochemical mechanisms underlying sudden and catastrophic shifts, and of the key biotic and abiotic factors influencing these processes. The CASCADE approach will develop a common-ground participatory approach that will serve as the basis of the sustainable management of the ecosystems, the biodiversity within these ecosystems, and the services provided by the ecosystems. (via [Wageningen UR](#), 18/6/2012)

### **Growing fresh lettuce with less irrigation**

[knowledge.cta.int/en/content/view/full/16352](http://knowledge.cta.int/en/content/view/full/16352)

Lettuce growers could safely reduce the amount of irrigation water used on their fields by 25 %, so say researchers working on an ongoing EU-funded project into how climate change and globalisation affect the production of fresh produce. The findings of the Veg-i-Trade ('Impact of climate change and globalisation on safety of fresh produce governing a supply chain of

uncompromised food sovereignty') project, coordinated by Mieke Uyttendaele from Ghent University in Belgium, show that using less water also helps increase the shelf life of fresh-cut lettuce, reduces farming costs and improves sustainability. One of the Veg-i-Trade partners has investigated the influence of different irrigation water doses on the quality and safety characteristics of two different types of fresh-cut lettuce: Romaine and Iceberg. The results show that using 25% less irrigation water prolongs the lettuce's shelf life, decreases browning on the cut edge of lettuce pieces and preserves microbiological quality. ([CORDIS](#), 9/7/2012)

### **New, publicly available food pathogen genome database**

[knowledge.cta.int/en/content/view/full/16350](http://knowledge.cta.int/en/content/view/full/16350)

The U.S. Food and Drug Administration (FDA), the University of California, Davis, Agilent Technologies Inc., and the Centers for Disease Control and Prevention (CDC) announced in July 2012 a collaboration to create a public database of 100 000 foodborne pathogen genomes to help speed identification of bacteria responsible for foodborne outbreaks. The database will provide a roadmap for development of tests to identify pathogens and provide information about the origin of the pathogen. The tests have the potential to significantly reduce the typical public health response time in outbreaks of foodborne illness to days instead of weeks. Open access to the database will allow researchers to develop tests that can identify the type of bacteria present in a sample within a matter of days or hours, significantly faster than the approximately one week it now takes between diagnosis and genetic analysis. ([FDA](#), 12/7/2012)

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## **Events | RSS**

### **Eleventh regional conference of the Southern and Eastern African Association of Farming Systems Research-Extension (SEAAFSRE)**

[knowledge.cta.int/en/content/view/full/16392](http://knowledge.cta.int/en/content/view/full/16392)

Dates: 19-21 November 2012

Venue: South Africa

Theme: 'Innovation System Perspective in Agriculture and Rural Development for smallholder farmers'. The conference is intended to share experiences and best practices in moving agriculture from subsistence to commercial among resource-constrained farmers in the region. In particular, the conference will share practical experiences on the role innovation, agricultural training, research and extension can play in enhancing a value chain orientation in smallholder agriculture.

[Download the first announcement.](#)

### **International Workshop: 'Metadata and Semantics for Agriculture, Food and Environment'**

[knowledge.cta.int/en/content/view/full/16389](http://knowledge.cta.int/en/content/view/full/16389)

Date: 28-30 Novembre 2012

Venue: Cadiz, Spain

The [5th International Workshop](#) on Metadata and Semantics for Agriculture, Food and Environment is hosted as a special track of [MTSR 2012](#), and aims to bring together researchers and practitioners that are working on agricultural, food-related and environmental knowledge production, organization, and exchange from a Semantic Web perspective. It is an international discussion forum, where interested experts will present the results of their work, and establish liaisons with other groups that are working on related subjects. In addition, it aims to outline the rich potential of these subjects as an application field for advanced metadata- and semantic-driven systems and services. Topics include but are not limited to contributions dealing with the following issues in the context of agriculture, food and environment.

### **Conservation Agriculture and Sustainable Upland Livelihoods**

[knowledge.cta.int/en/content/view/full/16390](http://knowledge.cta.int/en/content/view/full/16390)

Date: 10-15 December 2012

Venue: Hanoi, Vietnam

Theme: Innovations for, with and by Farmers to Adapt to Local and Global Changes: Background of conservation agriculture in Southeast Asia and prospect for the future. [More here.](#)

### **International Conference on Science and Technology for Economic Diversification (INSCITED) 2013**

[knowledge.cta.int/en/content/view/full/16452](http://knowledge.cta.int/en/content/view/full/16452)

Date: 27 February to 3 March 2013

Venue: Port of Spain, Trinidad

The National Institute of Higher Education, Research, Science and Technology (NIHERST), Trinidad and Tobago, and CSIR-National Institute of Science Technology & Development Studies (NISTADS), India, invites participation in their first joint conference entitled 'International Conference on Science and Technology for Economic Diversification INSCITED 2013'. The conference seeks to promote scientific research collaboration between India, Trinidad & Tobago and other emerging economies facing similar developmental challenges. The Conference aims to introduce practical policy solutions to the following challenges:

- . Weak links between science institutions and the private sector
- . Outdated or non-existent science and technology policies in most countries
- . 'Brain drain' associated with scientists, engineers and technicians leaving the region to work in developed nations
- . Weak and thinly spread R&D institutions or centres

Important dates:

Please register by 30th September 2012

Submission of abstract by 1st November 2012

## Grants, Competitions and Calls | [RSS](#)

### Call for Applications for AWARD Fellowships

[knowledge.cta.int/en/content/view/full/16460](http://knowledge.cta.int/en/content/view/full/16460)

Application deadline: 7 September 2012

The African Women in Agricultural Research and Development (AWARD) have announced the call for applications for the fifth round of AWARD Fellowships. Since 2008, more than 2 200 applicants have competed for a place in this prestigious programme that equips female scientists to advance in their careers and further their research. Please encourage qualified applicants whom you know to apply by September 7, 2012.

AWARD has also launched a new monthly e-newsletter, AWARD News, and hopes you enjoy reading about African women agricultural scientists, and their contributions to food security and poverty alleviation across the continent.

### Australia launches new ADRAS research awards in Africa

[knowledge.cta.int/en/content/view/full/16455](http://knowledge.cta.int/en/content/view/full/16455)

Deadline: Friday 21 September 2012

The AusAID Development Research Awards Scheme (ADRAS) is a competitive grants programme designed to attract quality primary research on priority development themes that informs policy development. The 2012 Round is open for proposals submitted by Australian and international research institutions. The Funding Round will accept proposals of up to three years in duration. Consistent with AusAID's development activities in Africa, research proposals will be considered in five thematic areas:

- . Agriculture and Food Security
- . Mining for development
- . Peace, conflict and security
- . Maternal and child health
- . Water and sanitation

Within these themes, research proposals will need to demonstrate that they respond to African priorities and agendas, and address issues of importance to African governments, researchers and communities. Proposals that reflect partnerships between African and international researchers will be well regarded.

### Vavilov Frankel Fellowships 2013 – Call for Research Proposals

[knowledge.cta.int/en/content/view/full/16457](http://knowledge.cta.int/en/content/view/full/16457)

Deadline: 11 November 2012

Two fellowships, for up to US\$ 20,000 each, are available for 2013 to carry out research, from 3 to 12 months, on a wide range of biophysical, economic and social themes related to the conservation and use of plant genetic resources in developing countries.

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## Jobs | [RSS](#)

### Intern at CTA - Science, Technology & Innovation in the Policies, Markets and ICTs (PMI) Programme

[knowledge.cta.int/en/content/view/full/16454](http://knowledge.cta.int/en/content/view/full/16454)

Deadline for application: 17 September 2012

Under the supervision of the Senior Programme Coordinator, Science and Technology (S&T) Policy in the Policies, Markets and ICTs (PMI) Programme, the intern shall provide services in support of ongoing project related activities. Special emphasis will be on supporting the follow-up of the 2012-2013 3rd Africa-Wide Women and Young Professionals in Science Competitions, on-going projects on food security, postharvest knowledge systems, innovation systems and tertiary education, the *Knowledge for Development* website.

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