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New feature articles

Is horticultural science in crisis? What is needed to assure its future?

By Errol W. Hewett, Professor of Horticultural Science [Emeritus], Institute of Food, Nutrition and Human Health, Albany, New Zealand



Science underpins successful horticultural development, whether on large corporate farms or agro-enterprises in developed countries or small subsistence units and small and medium enterprises in developing countries. There are however insufficient university trained professionals to service the horticulture sector. A recent publication of the Royal Horticultural Society noted that in the UK 70% of horticultural businesses surveyed struggled to fill skilled vacancies, with 90% saying horticulture lacked career appeal. In Australia, the number of horticultural graduates has declined from about 150 to about 40 per year within the last 11 years. Meanwhile, it has been projected that the horticulture sector will require about 2,000 new jobs each year for the next decade in order to retain its current situation. Horticulture is facing a crisis.

What is the Future of Horticultural Science in Africa?

By Wariara Kariuki, Jomo Kenyatta University of Agriculture and Technology, Kenya



Horticulture is a labour intensive sector that is important for human wellbeing and our lives would be very boring without it. Nevertheless, in many countries, faculties of agriculture and their departments of horticulture have been swallowed by schools of life or earth sciences. As a result horticulture gets attention only as a side subject when specific crops are being addressed. However, in Kenya the horticultural sub-sector has emerged as the most important in the agricultural sector providing not only food and foreign export earning but also many new jobs. This development is reflected in Kenyan universities establishing departments of horticulture and increased undergraduate enrolment in horticultural sciences. In view of the need to create 74 million jobs in Africa over the current decade to prevent youth unemployment from rising, can Kenya show the road for other African countries?

Science for a Social Purpose – A New Agenda for New Times

By Ameenah Gurib-Fakim, Centre for Phytotherapy Research Ltd, Mauritius

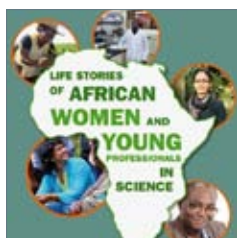
The specific challenge African and many other developing countries face is how to take advantage of positive indicators and move towards an inclusive and people-centred development agenda that harnesses the power of science and research and just as importantly, how to transform this knowledge into commercially viable products and enterprises.

Science, Technology and Innovation (ST&I) play a significant role in knowledge creation and its translation into products and processes that are key components for development. Economic transformation is directly linked to technological innovation, and one sector where this is very visible is agriculture. However for miracles to happen, the human capital issue comes across very strongly and African States need to focus on building their human capital (local and ways to attract highly talented diaspora) Investment in schools and universities, colleges must go side by side those in roads, and internet access. These investments, along with the appropriate policies, would nurture the emergence of small and medium-sized enterprises, which are among the engines for economic development.

CTA and S&T



Life stories of African women and young professionals in science



This booklet takes a look at the life stories of 12 remarkable African agricultural scientists who are making a difference on the continent and internationally. Ten of them are the women and young researchers who were winners of the 3rd Africa wide science competitions. They are motivated to be part of the solution, and not the problem. Indeed, as researchers they are helping to transform agriculture by developing science-based solutions to some of the complex issues facing African

farmers. Their journeys to becoming agricultural scientists are strikingly similar: most of them come from smallholder farms, and their flair for science was spotted and nurtured by their secondary school teachers

Operationalising an EU Approach to Research and Innovation for Sustainable Agriculture and Food and Nutrition security: Drawing on lessons learned

During 2014 the EC Directorate General International Cooperation and Development (DEVCO) redefined its approach to agricultural research and innovation for development (AR4D). On 7 November 2014, DEVCO presented its new approach during a workshop that brought together CGIAR stakeholders with representatives of the European and African research communities and the relevant Commission services. This publication provides an annotated agenda of the workshop and provides links to the various presentations. [Visit the website](#)

Developments and publications

Understanding the agricultural input landscape in Sub-Saharan Africa: recent evidence

The paper revisits Africa's agricultural input landscape, exploiting the recently collected, nationally representative, agriculturally intensive, and cross-country comparable Living Standard Measurement Study-Integrated Surveys on Agriculture, covering six countries (Ethiopia, Malawi, Niger, Nigeria, Tanzania, and Uganda). The most striking and important findings are distilled into 10 key takeaway descriptive results which show that: modern agricultural input use has picked up to a significant level in some regions within some countries, especially in the case of inorganic fertilizer and agro-chemical use; the incidence of irrigation and mechanisation remains quite small; there is surprisingly low correlation between the use of commonly 'paired' modern inputs at the household- and plot-level; maize-dominated plots exhibit higher rates of input use intensity, even relative to plots planted with cash crops; there exists a consistent inverse relationship between farm or plot size and input use intensity; farmers do not significantly vary input application rates according to perceived soil quality; few households use credit to purchase modern inputs. (World Bank, 09/2014)

Science, technology and innovation in the context of development – an overview of concepts and corresponding policies

Different perspectives on the inter-relationships between science, technology and innovation (ST&I), the multiple dimensions of development (ecological, economic, social and cultural) and of sustainability (economic, environmental and social) are explored. In addition to outlining underlying scientific concepts and detailing the change of paradigm in ST&I policy over the past decades, Anna Schwachula of the Centre for Development Research, at the University of Bonn, Germany (ZEF) and co-authors note the complexity of analysing the potential impacts of ST&I on society and propose three scientific models. The authors focused on how the OECD, World Bank and UNESCO defined and operationalised ST&I for development and conclude that by emphasising the economic aspects of developments, social and environmental dimensions are side-lined. The lack of institution-wide consensus on key concepts is observed and they caution against applying a universal blueprint. A call is made for a discussion of a broader range of conceptualisations and pathways along the science-policy interface to determine to what extent these could be used for developing countries. (ZEF, 06/2014)

A global vision and strategy for organic farming research

The International Federation of Organic Agriculture Movements (IFOAM) argues that sustainable pathways to innovation will require the engagement of all stakeholders in a science driven multi-disciplinary approach. The organisation has developed the Technology Innovation Platform of IFOAM (TIPI) with a vision and a 14 point action plan to advance organic agriculture through research, development,

innovation and technology transfer. The new paradigm proposed by TIPI is founded upon a whole systems approach, that engages farmers, researchers and other practitioners in co-innovative efforts; and open access technologies that are readily adaptable to local conditions. TIPI envisages bottlenecks in realising its vision and calls upon the organic farming community to support the action plan to advance organic agriculture in a forward-thinking and innovative way.

(IFAOM and FiBL, 23/10/2014)

Using the concepts of resilience, vulnerability and adaptability for assessing agricultural systems

There is clear conceptual overlap and often the inter-changeable use of; resilience, vulnerability and adaptability, which have emerged as the dominant concepts in the study of disturbance and change of social-ecological systems. The authors, Daniel Callo-Concha, of the Centre for Development Research, at the University of Bonn (ZEF), Germany and colleagues, argue that the driving methodological and operational criteria for their application cannot be unambiguously separated. They believe it is difficult to identify guiding principles for the operational application of each and stress that their operationalisation require consistency in approaches and protocols to ensure their coherent use. They conclude that the conceptual and operational integration of resilience, vulnerability and adaptability would perhaps lead to a more complete portrayal of the behaviour of agricultural systems in changing situations.

(ZEF, 01/03/2014)

Exploring the role of climate science in supporting long-term adaptation and decision-making in sub-Saharan Africa

Gaps in observational data, uncertainty in projections, impacts and vulnerability, limited capacity to interpret climate information and for making decision under uncertainty, are the key issues identified in this CDKN report. The working paper includes a review of articles and 'grey' literature on knowledge gaps and areas needed to support the capacity of African decision-makers. It also reports on a workshop that brought together UK- and Africa-based experts working on climate science and adaptation in Africa and on a side-event to the Africa Climate Change Conference 2013. Recommendations for addressing the gaps include promoting Africa-led scientific capacity, creating better uptake and translation of existing research, maximising value addition, and improving the science-policy interface. The report is intended to identify key gaps in science and capacity to feed into the scoping phase of the Future Climate For Africa (FCFA) programme, funded by DFID (UK) and DGIS (The Netherlands).

(CDKN, 29/04/2014)

Science-practice interactions for effective climate change adaptation: identifying new approaches for collaboration between Europe and low-income countries

Although research can provide context-specific data, analysis and knowledge for climate change adaptation, yet in practice, the potential of science-practice interaction is still underdeveloped. Funds

for research on climate change adaptation will considerably increase in the coming years. It is therefore important to explore ways of channelling the funds to promising research that can provide context-specific data, analysis and knowledge for climate change adaptation in low-income countries. This policy brief summarises the key findings and recommendations of an international expert workshop organised by the German Development Institute (Deutsches Institut für Entwicklungspolitik, DIE), the EU project CIRCLE-2 (Climate Impact Research & Response Coordination for a Larger Europe), and the German Aerospace Centre Project Management Agency (PT-DLR). Two key recommendations are:

- Extend the basis for identification of knowledge needs beyond literature review and the advice of a limited number of experts and high-level stakeholders.
- Funding agencies need to provide sufficient time and resources for science-practice interaction and should reconsider its incentives structures for research.

(DIE, 29/01/2014)

Climate-smart agriculture and resource tenure in sub-Saharan Africa: A conceptual framework

Key characteristics of four categories of agricultural practices with high climate-smart agriculture (CSA) potential related to sustainable land management are discussed in this paper. They include: Conservation agriculture (CA), Agroforestry, Soil and Water Conservation (SWC), Irrigation and Drainage. Nancy McCarthy and Josh Brubaker, consultants based in Washington D.C., USA, have hypothesised interactions between tenure security and adoption of changes in agricultural practices with high CSA potential, to help inform the design of CSA and tenure interventions, monitoring and evaluation plans, and impact assessment designs. They have laid out a conceptual framework for evaluating the pathways by which expanding property rights and strengthening tenure security affects incentives to adopt technologies broadly, and then apply the framework to each of the four CSA practices.

(FAO, 09/2014)

Climate-smart agriculture (CSA) in Grenada

Grenada is the only Caribbean country that is featured in a series of country profiles identifying ongoing and promising future climate-smart agriculture (CSA) opportunities and the relevant institutional and financial enablers for their adoption. Developed by the International Center for Tropical Agriculture (CIAT) and the Tropical Agricultural Research and Higher Education Center (CATIE), these country profiles intend to stimulate discussion within the countries and globally about 'entry points for investing in CSA at scale'. Concise information on the country's climate smart considerations relating to adaptation, mitigation, productivity, institutions and finance is provided. In addition the profiles present: the national context, including key facts on agriculture and climate change; CSA technologies and practices used; institutions and policies for CSA; financing CSA; and a future outlook.

(CIAT, 24/10/2014)

Strengthening resilience of coastal and small island communities against climate change hazards

UNESCO puts emphasis on the integration of scientific and local and indigenous knowledge in climate change adaptation and disaster risk reduction. The Asia-Pacific Network for global change research (APN) has contributed to the studies that have informed this publication, especially for those in coastal and small island communities in Indonesia, the Philippines, and Timor-Leste. Section 1 of the publication introduces the background, basic concepts and methodology used in the UNESCO project on 'Strengthening the Resilience of Coastal and Small Island Communities towards Hydro-meteorological Hazards and Climate Change Impacts'. Section 2 consists of country-specific lessons learned and action points derived from programmes implemented in the three countries. Sections 3 and 4 present specific policy actions and tools for promoting the integration of local and indigenous knowledge and science for climate change adaptation and disaster risk reduction.

(APN, 18/09/2014)

Understanding the water-food-energy nexus in the context of climate change

Energy, water and food resource systems are fundamentally interrelated but to date the three resource systems have mostly been organised and studied separately. A 'nexus approach', a multidisciplinary type of analysis of the relationship between energy, water and food, can help to reduce trade-offs and to build synergies across these three sectors. Produced by the Energy Research Centre of the Netherlands (ECN), this report reviews the current thinking on the 'energy-water-food Nexus' and the water-energy interrelationship to provide relevant information for local and regional decision-makers responsible for development and implementation of policies related to energy and water resource systems.

(ECN, 08/2014)

Bioenergy, food security and poverty reduction: Mitigating trade-offs and promoting synergies along the water-energy-food security nexus

An analytical framework to assess the track record of policy actions to encourage modern bioenergy innovation in order to achieve multiple-win outcomes in terms of poverty alleviation, improved health, gender empowerment and environmental sustainability is presented. Modern bioenergy is a core ingredient of sustainable economic development and could play an important role in poverty reduction and green growth. Managing the multiple trade-offs among bioenergy use, agricultural productivity, and ecosystem functions is a major development challenge. According to Alisher Mirzabaev and colleagues of the Center for Development Research (ZEF), Germany, addressing this challenge requires the identification of the drivers, trade-offs and impacts of bioenergy production, trade and use in the water-energy-food security nexus.

(ZEF, 08/2014)

Earth observation based assessment of the water production and water consumption of Nile basin agro-ecosystems

The development of open-access Earth Observation databases, especially for information related to actual evapotranspiration, is urgently needed. Scientists from IWMI, UNESCO, Delft Technical University, and the EROS Centre explain how Earth Observation data in the public domain can be used to estimate net water production (rainfall (P) > evapotranspiration (ET)) and net water consumption (ET > P) of Nile Basin agro-ecosystems. Measurements of the Moderate Resolution Imaging Spectroradiometer (MODIS), Second Generation Meteosat (MSG), Tropical Rainfall Measurement Mission (TRMM) and various altimeters are used. The paper is part of the *Remote Sensing* Special Issue '[Earth Observation for Water Resource Management in Africa](#)' and the fluxes, flows and storage changes presented form the basis for a global framework for describing monthly and annual water accounts in ungauged river basins.

(*Remote Sensing*, 24/10/2014)

Assessing land degradation and desertification using vegetation index data: current frameworks and future directions

The scientific requirements for degradation and desertification monitoring systems are identified: (i) validation of methodologies in a robust and comparable manner and (ii) detection of degradation at minor intensities and magnitudes. Thomas Higginbottom and Elias Symeonakis of the School of Science and the Environment, Manchester Metropolitan University, UK apply the statistical and ecological frameworks for assessing land degradation and desertification using vegetation index data. They also review the development of multi-temporal analysis as a desertification assessment technique, with a focus on how current practice has been shaped by controversy and dispute. The techniques commonly employed are examined from both a statistical and ecological point of view, and recommendations are made for future research directions. The paper is part of the *Remote Sensing* Special Issue '*Remote Sensing of Land Degradation in Drylands*'.

(*Remote Sensing*, 10/10/2014)

The State of Food and Agriculture 2014: 'Innovation in family farming'

Family farms must be supported to innovate in ways that promote sustainable intensification of production. This is according to the report *The State of Food and Agriculture 2014: Innovation in family farming* which analyses family farms and the role of innovation in ensuring global food security, poverty reduction and environmental sustainability. Innovation is considered to be a process through which farmers improve their production and farm management practices. Key messages point to the need for (i) innovation systems to include the extreme diversity of family farms and embrace environmental and institutional complexity of; (ii) an enabling environment for innovation, including good governance, stable macroeconomic conditions, transparent legal and regulatory regimes, secure property rights, risk management tools and market infrastructure; (iii) an increase in public investment in agricultural R&D and extension and advisory services.

(FAO, 16/10/2014)

Proceedings of the 49th annual meeting of the Caribbean Food Crops Society

Proceedings of the July 2013 Caribbean Food Crops Society (CFCS) 49th Annual Meeting are available. The theme of the meeting was 'Agribusiness Essential for Food Security: Empowering Youth and Enhancing Quality Products'. Research topics were varied, and included topics such as: Tilapia production in Trinidad, biomass briquettes, food safety standards, sensory evaluation of local foods, etc. The Caribbean Food Crops Society is an independent professional organisation with interdisciplinary orientation and membership. It fosters communication between persons capable of contributing to the development of science, technology, and production of food crops and animals in the countries of the Caribbean Basin and brings together scholars, researchers, extensionists, growers, and other professionals associated with food production, distribution, and policy.

(Caribbean Food Crops Society, 30/06/2014)

Scientists breed nutritionally rich yam bean

African Yam bean is an orphan highly nutritious crop that is undervalued by policy makers. Plant breeders at the Department of Agricultural Production of Makerere University, are breeding yam beans to develop palatable varieties that are free of poisonous substances and adapted to tall grass savannah agro-ecological zones. 31 new accessions have been included in the CGIAR's Potato Center (CIP) gene bank, and about 60 farmer varieties of yam beans are now maintained at CIP. Makerere University and NARO researchers are optimistic that the yam bean will contribute significantly to food security because it is rich in protein, carbohydrates, zinc and iron and also improves soil fertility.

(FarmBizAfrica, 11/10/2014)

Food and nutrition security: the concept and its realisation

Food and nutrition security (FNS) for all needs accelerated and revised action at international and national levels. Better understanding of the dynamics, synergies and causal linkages in FNS for human development is required and current concepts need revision. In this paper, Joachim von Braun, Director of the Center for Development Research (ZEF), Bonn University, Germany presents a menu of policy actions for enhancing food and nutrition security and discusses the linkages between 'bread and brain', i.e. cognitive and educational issues of nutrition. He argues that policies need to focus on overcoming supply constraints, reduce price volatility, enhance food productivity and quality, and reduce waste.

(Pontifical Academy of Sciences, 2014)

Editor's comments – It is heartening to see that we are beginning to question the concept of FNS in more depth, to be able to find solutions to this global challenge. See CAAST-Net Plus impact pathway FNS diagram by Francis and Nkoku-Talleh (2014).

Unpacking postharvest losses in Sub-Saharan Africa: a meta-analysis

Knowledge of the magnitude of postharvest losses (PHL) in sub-Saharan Africa is limited. Hippolyte Affognona, of ICIPE, Nairobi, Kenya and colleagues conducted a meta-analysis to expose the nature and magnitude of PHL, and the kinds of interventions that have been attempted to mitigate the losses. Their findings reveal inadequacies of loss assessment methodologies that result in inaccurate PHL estimates. Moreover, losses are often economic rather than physical product losses. Overall, technologies for loss mitigation fail to address the dynamics of supply chains.

(*World Development*, 31/08/2014)

Alliance formed to improve ocean policy coordination and action in the Pacific

A new alliance of Pacific Ocean island states, the Pacific Ocean Alliance, plans to contribute to effective ocean policy coordination, coherence and implementation, facilitate regional cooperation for the high seas, support national ocean governance and policy processes. It was launched in September 2014, at the 3rd UN Conference on Small Islands Developing States in Samoa, and will operate under the leadership of the Pacific Islands Forum. The Alliance will also promote integrated decision making at all levels. Key stakeholders include national governments, the private sector, donors, civil society, academic and research institutions, regional and international organisations, and other partners.

(Pacific Islands Forum Secretariat, 30/08/2014)

The road to sustainable tuna aquaculture

A sustainable and commercially viable aquaculture production for Atlantic Bluefin Tuna is possible based on results of the EU-funded project TRANSDOTT, which was completed in September 2014. The project built on several previous projects, such as the development of a hormone-based method to make fish reproduce in captivity. It also involved scaling up tuna production and making the endeavour economically viable. Some problems needed to be tackled first: to make the aquaculture more sustainable. Fish-based feed was step-by-step replaced by vegetable feed, to overcome cannibalism and to prevent wall collisions due to poor eye-sight. Some experts believe the best course of action for the Bluefin is to reduce the quotas to let the wild populations increase to some approximation of their original size.

(CommNet, 04/07/2014)

Seaweed species may have promising nutritive value for animal feed

A promising opportunity exists for specific seaweed species based on the analysis of the nutritional value. The study carried out by the Centre for Animal Nutrition, Wageningen UR, The Netherlands, assessed the nutritional value of various seaweed species from different locations in Europe and the influence of a bio refinery process on the value of the residue. Results emphasise the importance of adequate selection

of species and the need for further work to be confirm the results based on in vivo digestibility and performance studies.

(AllAboutFeed.com, 01/10/2014)

Can Sub-Saharan Africa's plural seed systems survive?

Regulatory bodies in Africa could use DNA fingerprinting to characterise and license seeds from the informal seed systems and to establish the legitimacy of these systems in regulatory frameworks and markets. Such recognition may help to diversify informal seed systems and deliver all types of seeds to farmers in diverse agro-ecologies. But this also would require open and inclusive markets. Leonard Haggai of the East Africa hub of the [Future Agricultures Consortium](#) reports that many participants of the [Regional Dialogue on Strengthening African Seed Systems](#) held in July 2014 raised doubts about the ability of scientists and policy analysts to influence seed policies that could support more open and plural seed systems. Reasons for their doubts are the current technological lock-in to few hybrid cash crops, the narrow interests of powerful actors in the sector and the non-organised smallholder farmers who cannot mobilise the political support for investments in a diversified seed system.

(IDS KNOTS, 07/08/2014)

Appraisal of rice production statistics in Uganda

The dire state of agricultural statistical capacity and methodologies in Uganda and other developing countries is highlighted. Doubt is often cast over the accuracy of FAOSTAT, the official statistics on crops, particularly for sub-Sahara Africa. Masao Kikuchi of Chiba University, Japan and JICA expert staff in Uganda, examined recent revisions made in the 'official' rice statistics of Uganda, together with rice-related statistics of the latest Uganda Census of Agriculture. They point out some anomalies in these basic rice statistics (overestimation, large fluctuations) and propose possible revisions (using district data and production average).

(*Tropical Agriculture and Development*, 11 /09/2014)

Beyond NERICA: high-yielding rice varieties adapted to rainfed upland conditions in Benin

Experiments have been conducted in four rainfed upland areas to assess yield differences in 65 rice varieties, including the interspecific hybrids: the upland New Rice for Africa (NERICA) varieties developed from crossing *Oryza sativa* L. and *O. glaberrima* Steud. Upland *indica* varieties performed well in three out of four environments, showing consistently higher yields than other upland NERICA varieties and their parents. None of the upland NERICA varieties showed consistently higher yields than their parents across the four environments. These and other results suggest that further increases in rice yields in the rainfed uplands of West Africa are most likely to occur through using upland *indica* varieties as donors. Researchers from the Africa Rice Centre in Benin, the Japan International Research Centre for Agricultural Science (JIRCAS, Japan) and JICA (Japan) conducted the experiments.

(*Tropical Agriculture and Development*, 11 /09/2014)

Diversity, genetic erosion and farmer's preference of sorghum varieties in North-Eastern Benin

The varietal diversity, distribution and extent, the rate of diversity loss and farmers preferential criteria for adopting sorghum varieties are assessed. This study, conducted in 15 villages in the North - eastern of Benin, shows a maximum of 12 constraints of which climate change (76.34%) was rated by many farmers as the top most problem affecting the sorghum production. The rate of varieties loss recorded per village varied from 0 to 100% (26.95% on average). Innocent Dossou-Aminon of the Polytechnic University of Abomey, Benin, and colleagues argue that at this rate of genetic erosion, local sorghum varieties might vanish around 2030 and emphasise the urgent need to conserve Benin's valuable sorghum genetic resources. Implementing a national programme for sorghum improvement and breeding to identify high-performance varieties adapted to soil and climatic conditions is recommended.

(*Int. J. Curr. Microbiol. App. Sci.*, 10/2014)

Monitoring the performance of agriculture and food systems

UN's Sustainable Development Solutions Network (SDSN) recommends the creation of a whole new global information system built on the principle of open data sharing and real-time learning to drive agricultural innovation. SDSN emphasises that governments must embrace the era of digitally-enabled exchange of information and prioritise, customise, and commit to implementing different 'digital agriculture' technologies, based on local relevance and feasibility, to collect new data that is highly disaggregated, easily sharable, and more transparent to foster accountability. It is perceived that many of the real or perceived data gaps could likely be filled if existing information tools and methodologies were better aligned and more readily available to all. Technologies to develop this global information system include geographic information systems (GIS), remote sensing, global positioning systems (GPS), and numerous internet and smart phone tools, such as mobile phone applications, social media, and crowd sourcing.

(UN SDSN, 10/01/2014)

Reframing the evidence debates: a view from the media for development sector

The lack of clear standards for reporting evidence from media for development programmes, the limited efforts to date to collate and systematically review the evidence that does exist, and the lack of relevant fora in which findings of evaluations can critically be discussed, are significant barriers to evidence generation. The paper is part of the BBC Media Action's *Bridging Theory and Practice* series and calls for an 'evidence agenda', which creates shared standards to systematically map the existing evidence, establishes fora to discuss and share existing evidence, and uses a strategic, longer-term collaborative investment in evaluation to highlight where evidence gaps need to be filled. Without such an agenda evidence producers, assessors and funders risk talking at cross purposes.

(MandE News, 09/08/2014)

The Australian Access and Benefit Sharing (ABS) framework: A model case for bioprospecting?

Despite a pioneering ABS legislation in Australia, there is still only one biodiscovery case involving commercial benefit sharing under Commonwealth legislation. One lesson is the need for improving the dynamic element in ABS contracts, building in a clearer trigger point for when the obligations to share are actualised and to reverse the burden of tracking and follow-up to the user rather than leaving it to the provider. Linking the ABS and IPR legislation through disclosure of the source of biological resources in patent applications can be an appropriate legal measure to track compliance. Fridtjof Nansen Institute (FNI) ABS expert researchers argue the outside world would also benefit from Australia being a party of the Nagoya Protocol because the country has learned many ABS lessons to be shared with other parties of which many will not have come nearly as far in their ABS experience. Among others, there are lessons about drawing up an effective regulatory system, but also about legal challenges for federal nations with mixed jurisdictions between the federal and state level. These lessons concern partnerships between public academic institutions and the private sector with great benefits for both parties, as well as difficulties in distinguishing scientific from commercial biodiscovery and defining roles.

(FNI, 01/2014)

Assessing the effectiveness of smart phone-based video training in invasive plant identification

Citizen science is emerging given the rapid growth and increasing popularity of smart phone technology which put sophisticated data-collection tools in the hands of more and more citizens. Jared Starr of the University of Massachusetts, Amherst, USA and colleagues argue that with smart phone apps, it is becoming increasingly practical to remotely acquire high quality citizen-submitted data at a fraction of the cost of traditional studies. Yet, one impediment to citizen science projects needs to be addressed, i.e. the question of how participants are trained because the traditional 'in-person' training model can be cost prohibitive as the spatial scale of a project increases. In the context of a study of invasive plant identification in Massachusetts, the authors explored possible solutions and analysed three training models: (i) in-person, (ii) app-based video, and (iii) app-based text/images. They found that participants who had received video training were as successful at invasive plant identification as those trained in-person. This and other findings of their study have implications for a variety of citizen science projects that need alternative methods to effectively train participants when in-person training is deemed impractical and too expensive.

(PLOS ONE, 05/11/2014)

Sub-Saharan Africa's share of global research rises

Sub-Saharan Africa's contribution to global research output increased from 0.44% in 2003 to 0.72% in 2012, suggesting a reversal of the trend reported in 2007 that Africa's contribution to worldwide research was declining. Focusing on research output and citation impact, the World Bank report, '*A Decade of Development in Sub-Saharan African Science, Technology, Engineering and Mathematics Research*'

reveals that while research in the region has doubled over the past 10 years (most research in Africa focuses on agriculture and the health sciences, as the continent is battling serious diseases like HIV/AIDS, malaria, and most recently the Ebola epidemic), research in the physical sciences and in the science, technology, engineering and mathematics based fields has lagged behind other subject areas. STEM research makes up only 29% of sub-Saharan Africa's output, leaving a gap in many countries' ability to enhance sectors like energy, transport, light manufacturing and the extractive industries.

(*University World News*, 02/10/2014)

Biofortification Progress Briefs

The Biofortification Progress Briefs present existing evidence on biofortification, identify knowledge gaps, and stimulate discussion on how to leverage biofortification to improve nutrition and health. Each of the biofortified crop in development have a fact sheet detailing the breeding effort to date, the future releases, capacity building efforts, regional efforts, development highlights and challenges. For example, one highlight in the development of vitamin A cassava is the existence of clones with up to 15 ppm provitamin A content, and breeding challenges include low dry matter content of limited root mealiness of provitamin A varieties. The 40 briefs are grouped under three broad topics: Crop Development and Alternative Approaches; Nutrition Consumer Acceptance and Cost-Effectiveness; Crop Delivery Experiences. They served as background papers to the April 2014 Biofortification conference in Rwanda, on agriculture, food, nutrition, and health. The conference culminated in a series of commitments to tackle hunger and micronutrient deficiency through nutrition-sensitive agriculture, captured in the Kigali Declaration on Biofortified Nutritious Foods.

(HarvestPlus, 08/2014)

Events



3rd Global Soil Week 2015

Dates: 19-23 April 2015

Venue: Berlin, Germany

Second International Congress Hidden Hunger

Dates: March 2015

Venue: Stuttgart, Germany

End of Abstract Submission: November 30, 2014

End of Normal Registration: February 26, 2015

Calls



Nestlé Creating Shared Value Prize 2016: Grants for Nutrition, Water & Rural Development

Deadline: 28 February 2015

Call for applications: International Climate Protection Fellowships

Deadline: 15 March 2015

Call for Contributions: World Food System Conference 2015

Call by the World Food System Center of ETH Zurich for contributions to its international conference taking place on Monte Verità, Ascona, Switzerland from 21 to 26 June 2015

Call for abstracts: Tackling world food system challenges: across disciplines, sectors and scales

(World Food System Conference 2015. Deadline: 22 February 2015)

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