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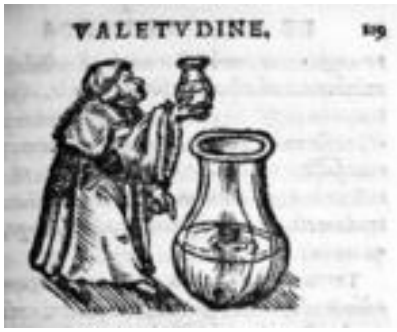
New dossier and feature articles

IMPROVING NUTRITION OUTCOMES



Food and nutrition security is a global challenge which is increasingly engaging the attention of international, regional and national policy makers, researchers and academicians, farmers, the private sector and the development community. While, achieving food security has always been a priority for many, within recent times, concerns have grown about under and over-nutrition, especially linked to a failure to adequately address stunting and micro-nutrient deficiency and a rise in non-communicable disease. Understanding the nexus between agriculture, food and nutrition has become a research and development priority. For children, there is a particular focus on the first 1000 days from conception to age two, as poor nutrition in this period has particularly damaging long-term effects. Persuading politicians to focus on nutrition is difficult as effects are often hidden or delayed, but demonstrating the cost of failing to act is crucial to raising the profile of the nutrition agenda in policy and decision making.

There are many practical issues to ensuring coherence in agriculture, nutrition and related policies and programmes. Reducing hunger and improving nutrition outcomes require inter-linked thinking and multi-disciplinary and multi-sectoral approaches as well as multi-stakeholder engagement. Agriculture and nutrition researchers need to work together for tackling problems such as micronutrient deficiencies and developing solutions such as bio-fortification. The private sector also needs to be mobilized to become more engaged in addressing this global challenge. Through articles, documents and links, this folder explores both the emerging priorities in agriculture and nutrition research and what is needed for policy, research and industry stakeholders to work toward improved nutrition outcomes.

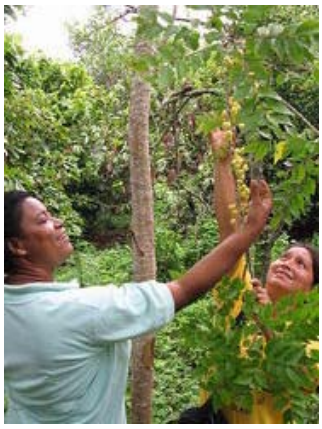
Commissioned by CTA. Edited by CABI, KIT, Contactivity and CTA.

Explore the new dossier on our website.

Improving nutrition through agriculture: priorities and approaches

Kimberly Keeton and John McDermott, CGIAR Research Program on Agriculture for Nutrition and Health (A4NH), led by the International Food Policy Research Institute (IFPRI), Washington, USA

In this new lead article, Kimberley Keeton and John McDermott describe the complex



interplay of malnutrition determinants and stress the need for multi-sectoral policy and programme responses where agriculture has a critical role in providing healthy diets. Government and research should embrace nutrition through three areas: knowledge and evidence, politics and governance, and capacity and resources.

Keeton and McDermott describe several known agricultural strategies to boost more nutritious food systems. One approach is to improve household productivity of nutritious foods by targeting small farms where utilising seasonal crop production of traditional and local foods must be encouraged. Another possible cost-effective strategy for reducing micronutrient deficiency is through bio-fortification of commonly-consumed staple foods (breeding crops with enhanced levels of bioavailable nutrients). Yet another approach is to enhance post-harvest and food safety knowledge, process design and efficiency are translated into improved nutritious and safe foods at the 'fork' level.

Read the article.

Making nutrition a national priority: a few policy process examples

Jan Meerman, Food and Agriculture Organisation (FAO) of the United Nations, Rome, Italy and Noora-Lisa Aberman, International Food Policy Research Institute (IFPRI), Lilongwe, Malawi

In this new lead article, Jan Meerman and Noora-Lisa Aberman explain the key factors that make nutrition a consistently marginalised issue in national policy making, and suggest potential avenues for governments to build cross-sector capacity and coordination. The complicated nature of malnutrition makes finding sustainable and comprehensive solutions difficult as they span multiple sectors, require inter-ministerial coordination, and demand resonance between technical paradigms. Weak institutional structures, unpredictable contributions from governments and donors, short supply of qualified personnel and managers and inadequate and unreliable data are most often holding back concrete progress.

Meerman and Aberman suggest that breaking the low-priority cycle will require central government to initiate a number of processes in parallel: coordinate a comprehensive policy narrative, build a coalition of high-level, high profile advocates, and gather political backing for the institutional placement of a national nutrition 'architecture'. The authors identify readiness criteria and indicators for scaling up nutrition and formulating possible incentives for pro-nutrition programming and convergence across sectors. The challenge is how to activate and sustain a nutrition mandate within government agencies whose performances are evaluated on non-nutrition-oriented activities. In that regard, the CAADP Nutrition Capacity Development Initiative is an encouraging enterprise: involving 51 countries, they assist countries in situation analyses and developing road maps for integrating nutrition into their National Agriculture and Food Security Investment Plans.

Read the article.

Improving nutrition outcomes: selected resources

Bio-availability of iron, zinc, and pro-vitamin A carotenoids in bio-fortified staple crops

This review of recent studies of bio-fortified crops, led by Michael R. La Frano at UC Davis, assesses the micronutrient bio-

availability of bio-fortified staple crops and derives lessons that may help direct plant breeding to understand the potential efficacy of food-based nutrition interventions. Although breeding to reduce the amounts of antinutrients and heat treatment in food preparation are common-place processes that generally increase the bio-availability of micronutrients, the researchers note that antinutrients still possess important benefits. Nevertheless, bio-fortified foods with relatively higher micronutrient density have higher total absorption rates than non-biofortified varieties. From a policy point of view, this study presents evidence that supports the focus on efforts to breed plants with increased micronutrient concentrations in order to decrease the influence of inhibitors and to offset losses from processing.
(*Nutrition Reviews*, 01/04/2014)

Local markets for global health technologies: lessons learned from advancing six new products

In this article, Dipika Mathur Matthias and colleagues from PATH (an international NGO based in the USA) present six case studies of technologies recently introduced into developing-country markets, among which is the 'Ultra Rice' fortification technology (a formulation and method for creating reconstituted rice grain packed with micronutrients). Using a market introduction framework, Matthias et al. highlight key elements that may have contributed to varying degrees of success and to certain challenges in the target markets, in particular in those of the 'local institutional' type and 'consumer' type. The case study of Ultra Rice introduction in Brazilian consumer markets reveals the importance of closely coordinating the various introduction pathways as well as building sustainability into the product introduction from the outset. In Brazil, planning for sustainability required identifying the array of local organisations that can take ownership of the product and laying out the market development process well before donors exit. Lessons learned from introducing global technologies into local markets include: build supply and demand simultaneously, consider the need for one lead/coordinating organisation, have a strong vision and intention to reach scale, pay strong attention to the incentives for profitability of the private sector.
(*Global Health: Science and Practice*, 2014)

What risks do agricultural interventions entail for nutrition?

Sandrine Dury, researcher at UMR MOISA, CIRAD, France, and colleagues conducted a review of scientific papers and institutional reports as well as expert interviews to explore the potential negative This review shows that certain agricultural interventions that are successful for certain aspects (production, income, etc.) may have unexpected negative effects on nutrition. The relations between agriculture and nutrition are eminently complex, the risks vary depending on the nature and context of the intervention and no recommendation can be made in absolute terms. Nevertheless, a few principles of caution can be applied: (i) identify and keep track of nutritional risks throughout the life span of the intervention; (ii) promote diversification to prevent risks linked to specialisation of farming systems and incomes; (iii) encourage practices with low labour requirements and activities enabling women to increase their autonomy; (iv) set in place good practices known to enable a reduction in health risks; (v) anticipate potential exclusion effects of interventions, and pay specific attention to vulnerable groups. Overall, by ensuring coordination between sectors when designing and implementing interventions, it is possible to identify and manage some aspects that the agricultural sector can hardly tackle alone.
(UMR MOISA, 03/2014)

Nutrition-sensitive agriculture: a pillar of improved nutrition and better health

Detlef Virchow, executive manager at the Food Security Center, University of Hohenheim, Germany, produced this synthesis report to take stock of innovative approaches to improve the positive nutrition-related impacts of agriculture and related food systems. A compilation of 16 research papers; this study was produced for practitioners in governmental and non-governmental organisations, at local to international levels, who can take action to make the food system more nutrition-sensitive by modifying one or more parameters of the overall food-nutrition system. The study provides an overview of the cross-cutting themes relevant to nutrition-sensitive agriculture (conceptual discussion, plant breeding, gender, production and processing, home and community gardens, urban agriculture and market integration) and presents

examples from eight countries (Bangladesh, Brazil, Cambodia, Egypt, Malawi, Mongolia, the Philippines and South Africa). The examples reveal a variety of possibilities and opportunities for incorporating nutrition objectives into agriculture and food systems. They also show how agricultural and related food security policies and interventions can be designed and implemented in a manner contributing to an adequate, well-balanced diet of the population.
(Food Security Center, 22/03/2013)

Agriculture for improved nutrition: the current research landscape

This review led by Rachel Turner, affiliated with the Leverhulme Centre for Integrative Research on Agriculture and Health, LCIRAH, UK maps the extent and nature of current and planned research on agriculture for improved nutrition in order to identify gaps where more research might be useful. Gaps were identified in research extending through the direct pathway from agriculture to nutrition, through the food value chain and including measurements of the food environment, individual food intake or dietary diversity, infant and young feeding practices, and nutritional status. There were also critical gaps in research on the indirect effects of changes in agricultural practices on nutrition, acting through income and economic growth; on the effects of agricultural policy change on nutrition; on governance as it relates to the development of agriculture-for-nutrition policies and programmes; and on the cost-effectiveness of agricultural interventions. Finally, there is a clear gap in research on broader target groups, particularly non-rural populations and men, the relationship between agriculture and nutrition-related non-communicable diseases, and people living in fragile and post-conflict states, as well as research on methods and metrics.
(*Food and Nutrition Bulletin*, 2013)

Kenya National food and nutrition security policy

The Kenyan Food and Nutrition Security Policy (FNSP) provides an overarching framework covering the multiple dimensions of food security and nutrition improvement. It has been purposefully developed to add value and create synergy to existing sectoral and other initiatives of government and partners. It recognises the need for multi-public and private sector involvement, and that hunger eradication and nutrition improvement is a shared responsibility of all Kenyans. The policy and associated actions will remain dynamic to address contextual changes and changing conditions over time. This policy is framed in the context of basic human rights, child rights and women's rights, including the universal 'Right to Food'.
(Agricultural Sector Coordination Unit, 2011)

Farming for balanced nutrition: an agricultural approach to addressing micronutrient deficiency among the vulnerable poor in Africa

An increase in the cultivation of high quality foods such as legumes, fruits and green vegetables, may be able to deliver a balanced diet with adequate micronutrients to households, without necessarily requiring additional land and labour. Such approaches foster community self-reliance, are sustainable in the absence of external funding, and offer the opportunity for enhanced income by marketing surplus production. Diet diversification through better use of existing biodiversity offers an immediate means to address poor diet quality and can also include the use of presently available nutritionally enhanced crops, such as orange-fleshed sweet potato.
(*African Journal of Food, Agriculture, Nutrition and Development*, 2011)

Addressing micronutrient deficiencies: alternative interventions and technologies

Market failure for nutritional attributes of foods leads to underinvestment in crop breeding to enhance nutritional content of foods. As awareness of the importance of micronutrient deficiencies in the diets of poor people has grown, public investments in research to create biofortified staple crops have increased. An examination of lessons from established interventions to address micronutrient deficiencies shows where and how biofortification can complement existing interventions and provides guidance regarding potential hurdles to successful implementation. The potential for different crop-breeding technologies to biofortify crops is examined, and the advances that can only be achieved through

application of modern biotechnology are identified.
(*AgBioForum*, 2007)

Find more resources in the K4D dossier on nutrition.

CTA and S&T policy

CTA commissioned case studies on post-harvest losses

In 2012, CTA adopted a different approach to understanding the issue of post-harvest losses in ACP countries for better identifying possible intervention points. Case studies, led by in-country post-harvest experts were commissioned using an agreed CTA methodology. The results are interesting as they confirm that there are many pathways to post-harvest losses. Understanding the PHL pathways for a particular value chain and the economic value to the actors are need for determining interventions. For example, in the Ghana case study, the gari processors allowed farmers to keep the cassava in the ground until they needed the cassava for processing; hence PHL was not a problem for them. In Senegal, the extent of the post-harvest losses in the rice sub-sector, depended on the season (wet/dry) and the method of cultivation (irrigated vs non-irrigated). The pumpkin case in Trinidad and Tobago, highlighted the significance of varietal issues among others. Hence, interventions for reducing PHL should start with the end product and the economic value (and the nutritional significance) and work backwards. The evidence can then be used for policy and decision-making and not only by governments by the entrepreneurs. Generally speaking, governments are responsible for providing the enabling infrastructure; roads, ports, electricity, water etc but countries also need post-harvest and other technical expertise, packaging and equipment suppliers and laboratories to list a few.

Explore the K4D dossier on post-harvest losses.

Analysis of the post-harvest knowledge system in Ghana: case study of cassava

Gloria Essilfie, Department of Crop Science, University of Ghana, Legon, Ghana

In this new article, Gloria Essilfie writes a detailed account of the post-harvest system of cassava in Ghana. Based on a case study on gari processing, Essilfie documents the different stages of the production chain and identifies hotspots for post-harvest loss. She finds that losses are minimal during the actual gari production chain and recommends that further research to determine on-farm losses (during the wet season especially) and at the level of the distributors and markets. In terms of research and training capacity for (cassava) post-harvest science, technology and innovation, Essilfie's account of (para-) governmental and academic institutions shows Ghana possesses sufficient and adequate resources to tackle the losses from field to market. Essiflies also highlights the fact that the profitability of the gari value chain in Ghana is dependent on the cassava varieties grown by farmers: higher yielding, pest resistant and starchier varieties can prevent monetary losses at the processing stage.

Finally, Essilfie explains that Ghana's Food and Agricultural Sector Development Policy (FASEDEP II) provides for specific interventions in the cassava production and processing sector that would consolidate the value chain, guarantee food security and economic growth. For example, FASEDEP II lists variety improvement, up-to-date knowledge/protocols for extension, machinery and equipment, private sector participation and market access as priorities. Specifically for the gari processing plant under study, Essilfie recommends that: farmers be taught to use high yielding varieties and improved cultivation techniques; processors be trained in meeting hygiene and food safety standards for both the local and export markets; industrial extension services be strengthened as well to better guide the processors; links to international markets and overseas branding be developed and sustained.

Read the article.

Analysis of the post-harvest knowledge system in Trinidad and Tobago: case study of pumpkin

Majeed Mohammed, Department of Food Production, University of the West Indies, Trinidad, West Indies

In this new article, Majeed Mohammed conducts an assessment of the pumpkin post-harvest handling system in Trinidad and Tobago. The study also looks at the human, infrastructural and institutional capacity and the information/data gaps for better policy formulation. Mohammed provides an estimation of post-harvest losses of pumpkin at various market outlets at critical stages in the handling system during dry and wet seasons in Trinidad and Tobago and notes that post-harvest losses varied according to growing season and type of market outlet. Dry and wet season pumpkin post-harvest losses were highest at export markets and lowest at wholesale markets, for example. Each step in the handling system (harvest, transportation, curing, sorting, packaging, and storage) is assessed and causes for losses identified. It is clear that multiple handling along the marketing chain influences the cumulative levels of deterioration in quality, and ultimately the magnitude of post-harvest losses.

Mohammed provides an in-depth account of post-harvest training, research and outreach institutions in Trinidad and Tobago, and detailed descriptions of each institution's specific function and roles in knowledge creation and capacity development. While various academic departments, international development organisations and public agencies all provide for post-harvest research and training, major hindrances affecting the flow of information still exist. In Trinidad and Tobago, the best sources of information for producers and marketers are 'trial and error', garden shops, and fellow professionals, while it was found that research institutes and farmers training centres only reach around 15% of farmers. Extension, mainstream media and associations have no significant impact. As the government of Trinidad and Tobago is building packing houses across the country and infrastructure for the development of value-added products, Mohammed also recommends better extension for farmers and processors: demonstrations on pumpkin farms at harvest time, development of standards, handling procedure and best practices, introduction of low cost processing technology, etc. Participants at a follow-up workshop clearly identified extension and training as the priority for the sector.

Read the article.

Analysis of the post-harvest knowledge system in Senegal: case study of the rice sub-sector

Fallou Sarr, Institute of Food Technology (Institut de Technologie Alimentaire, ITA), Dakar, Senegal

In this new article, Fallou Sarr reflects on the post-harvest knowledge system for rice in Senegal. He note that rice occupies a prominent place in Senegal's economy and in food consumption for both urban and rural households. Since independence, rice consumption has increased by almost 1,000%, reaching 1 million t of milled rice. Paddy rice production is the responsibility of farmers in irrigated areas and rain-fed areas However, the collection of paddy rice, in irrigated areas, is an activity undertaken by traders, rice millers and farmers while, in rain-fed areas, it is mainly carried out by women and children (more than 90% in the Southern area) and with carts (70% to 80%, in the Central area). Factories find it difficult to secure large quantities of paddy rice in a single collection area in the Senegal River valley, Sarr acknowledges that there is a clear difference between both rice cultivation systems and this is also reflected in post-harvest losses. However paddy drying is critical for both systems with losses ranging from 5 to 10%. Irrigated systems face two additional critical issues: paddy rice harvest (ill-adapted harvesters) and drying (insufficient drying areas). On the other hand in rain-fed systems, threshing losses, which is mainly manual, represents the stage where most post-harvest losses are recorded (40 %). Sarr emphasizes three intervention areas for improving the post-harvest knowledge system; research, government & universities and regional organisations.

For research, Sarr recommends that they systematically assess post-harvest losses at all stages of the rice value/supply

chain, to indicate critical points and the best ways to address them; study, experiment and disseminate local knowledge on rice post-harvest handling (rice conservation/storage) and adapt technological innovations for greater efficiency, effectiveness and accessibility (harvester, thresher, sorter). With respect to the government and universities, he recommends that a national programme entirely focused on improving rice post-harvest systems (equipment, infrastructure, processing, training, organisation, marketing, access to credit) be developed. For regional organisations such as CORAF/WECARD, Sarr recommends that they include more projects specific on post-harvest treatment in their food crops programmes.

Read the article.

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Evidence for improving policy and practice

Discussion paper: What is a sustainable healthy diet?

In this paper, Tara Garnett, of the Food Climate Research Network (FCRN, UK), considers the increasingly topical question of 'What is a sustainable healthy diet?' She begins by highlighting the rationale for focusing on the diets question, and then moves on to discussing definitions of 'good nutrition' on the one hand, and 'sustainability' on the other. The main substance of her argument focus on the major food groups that constitute UK's Eat-well plate, examining the health and sustainability issues that their consumption raises. She also included a review of recent studies in this area. An important limitation of her paper is that it focuses largely on developed country contexts. Being a discussion paper, FCRN is looking for input from members in low income and emerging economies, where the sustainability and health issues play out very differently.
(FCRN,04/2014)

Vitamin A: Moving the food-based approach forward

Ted Greiner, professor of nutrition at Hanyang University, South Korea explains why food-based approaches to combating vitamin A deficiency continue to be largely ignored by governments and donors. According to Greiner, this may be partly because the way of viewing food-based approaches has largely been informed by the community which supports micronutrient supplementation. Food-based approaches may be perceived as competitive or distracting and are thus slandered, for example claiming they are unproven or even ineffective. To the contrary, Greiner shows, it is the supplementation approach that fails to improve vitamin A status and is even lacking in proof of impact on young child mortality in real life settings. Rather, a wide variety of common and indigenous foods are proven effective in improving vitamin A status even in short-term trials. Food-based approaches are complex to implement and to evaluate and take time to mature and exert impact. But unlike supplementation, they reach all members of the community, are safe for pregnant women, have no side effects, are sustainable, and confer a wide range of benefits in addition to improving vitamin A status. Food-based approaches are also often portrayed as being expensive, but this is only true from a 'donor-centric' way of viewing costs. From the point of view of host countries, communities and families who grow vitamin A rich foods, the economic benefits are likely to outweigh the costs.
(FAO and WHO, 2013)

Nutrients in crop fall as CO_2 levels rise

Andrew Leakey, plant biology professor at the University of Illinois, US, and colleagues report that levels of zinc, iron and protein drop in some key crop plants when grown at elevated CO_2 levels. The teams simulated high CO_2 levels in open-air fields using a system called Free Air Concentration Enrichment (FACE), which pumps out, monitors and adjusts ground-level atmospheric CO_2 to simulate future conditions. The experiments revealed that the nutritional quality of a number of

the world's most important plants dropped in response to elevated CO_2. Zinc and iron went down significantly in wheat, rice, field peas and soybeans. Wheat and rice also saw notable declines in protein content at higher CO_2. Nutrients in millet, sorghum and maize remained relatively stable at higher CO_2 levels because these crops use a type of photosynthesis, called C_4, which already concentrates carbon dioxide in their leaves.
(University of Illinois, 07/05/2014)

Indigenous leafy vegetables in South Africa: Unexplored source of nutrients and antioxidants

In this review, Collise Njume and colleagues from Walter Sisulu University, South Africa, describe the nutritional value and antioxidant potential arising from the rich polyphenolic constituents of 22 indigenous leafy vegetables (ILVs, or imifino, morogo, muhuro in local dialects) species belonging to 12 genera and 10 families. *Amaranthus* species, *Cucurbita pepo*, *Bidens pilosa*, *Chenopodium album* and *Solanum nigrum* (imifino, morogo, muhuro) appear to be the most popular and most widely occurring leafy vegetables in the rural areas of South Africa. The authors highlight the need to create awareness that would encourage consumption and industrial production of these vegetables in a bid to curb the high level of malnutrition and food insecurity in the country.
(*African Journal of Biotechnology*, 05/2014)

Vegetables to combat the hidden hunger in Africa

In this article, published in *Chronica Horticulturae*, the journal of the International Society for Horticultural Science (ISHS), tropical agronomist Gerard Grubben from the Netherlands and co-founders of the Eastwest Seed Company sketches the scope of vegetable production for the domestic African markets and its importance for improvement of nutrition and health for the poorer population. Grubben notes that emphasis has remained on research and development of energy rich staple crops (cereals, tubers, pulses) and cash crops. Compared to tropical Asia, the vegetable sector in Africa is lagging behind as a result of weak research, breeding, training and extension services, an insufficient seed distribution network and low purchasing power. The author believes many policy makers ignore the nutritional and economic value of vegetables. For example, in countries like Ethiopia, Kenya, Tanzania and Senegal, high-tech vegetable production for export to Europe and the Arabia Peninsula or for the small supermarket segment in the regional big cities has been supported with ample donor funding. The huge traditional domestic market, of crucial importance for the nutrition of the increasingly urbanised population, is almost devoid of public support. Gerard Grubben is sharing a copy of the article on our website.
(via Zunia.org, 02/05/2014)

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Review of African medicinal plants with anti-diabetic potentials

Researchers from the University of KwaZulu-Natal, South Africa and the Ahmadu Bello University, Nigeria, produced a systematic review of all the in vivo anti-diabetic studies conducted between January 2000 and July 2013 on African plants to take a closer look at some relevant plants from the continent's sub-regions. The researchers found that plants of the Asteraceae and Lamiaceae families are the most investigated, and West Africa has the highest number of investigated plants. Although promising results were reported in many cases, only a few studies reported the partial characterisation of bioactive principles and mechanisms of action. The authors hope that government agencies, pharmaceutical industries, and the scientific community will investigate some of these plants in the future and explore avenues for commercialisation. Recent research has dealt with the characterisation of bioactive principles. See our herbs and medicinal plants dossier.
(*Planta Medica*, 17/02/2014)

Crop yields and global food security: Will yield increases continue to feed the world?

Three agricultural scientists, Drs Tony Fischer, Derek Byerlee and Greg Edmeades, have written a 640-page reference book (published by ACIAR, it is free to download and available in print) on global crop yield prospects and food security. This book, well received by experts in the field, considers the influences behind crop area and yield change over the past 20 years in the key breadbasket regions of the world for wheat, rice, maize, and soybean, along with 20 other important

crops. It provides some answers and considers the opportunities for future yield prospects through lifting potential yield and closing yield gaps to 2050. After years of research the authors concluded: (i) progress in potential yield, when the best management practices and varieties are used, continues (+0.7% annually); (ii) yield gaps between potential and actual farm yields vary greatly across crops and regions (gaps over 100% for some crops such as maize); (iii) closing the large yield gaps in developing countries would seem the quickest and most feasible intervention for lifting progress (more research and public investment needed); and (iv) technological prospects exist for raising rates of potential yield progress, for example through increasing photosynthesis, utilising untapped diversity in crop gene banks, low-cost molecular markers for desirable genes and genetic engineering.
(ACIAR, 08/05/2013)

Reaping benefits from post-harvest science in the South Pacific

Professor Steven Underhill of the Australian Centre for International Agricultural Research (ACIAR) describes how research in the South Pacific is being tailored to boost Fiji fruit and vegetable exports. His impression of post-harvest handling systems in the South Pacific was that of a sub-optimal system which lacks reliable infrastructure and technology. For example, packaging is inappropriate for transporting produce any distance (i.e. old boxes and sacks are used), packing facilities are limited, trucks overloaded with produce travel along rough roads, and refrigeration is non-existent. Given these apparent post-harvest limitations, Underhill believes improvements to post-harvest practices present big opportunities to benefit local farmers. Historically, post-harvest efforts have centred on introducing a concept of 'post-harvest best practice' from outside the region. Over the past decade, this approach has led to the construction of packing sheds and improved packaging with cool storage, and general post-harvest training for farmer groups. However, Underhill feels much more could still be done to tailor solutions to the local context and maximise benefits for smallholder farmers. Understanding local needs and analysing the post-harvest supply chains should be top priorities for post-harvest science.
(ACIAR, 06/05/2013)

Extrusion technology: A food processing technique for producing nutritious and safe foods

The Institute of Food Technologists (IFT) has produced a report on extrusion technology. Extrusion technology is central to value addition to agricultural commodities, especially cereals and legumes: it is a powerful process that combines several operations, including mixing, cooking, kneading, shearing, shaping, and forming. This high-temperature short-time (HTST) process usually reduces microbial contamination, inactivates enzymes, and facilitates the elimination of anti-nutrient factors, resulting in products that are in a dry state with typically low water activity, which do not require refrigeration storage. Several researchers in Africa have made considerable progress in product development using extrusion technology for the development and production of traditional-based products from indigenous materials. Extrusion has great potential in tropical developing economies where infrastructure for a cold supply chain is inadequate.
Editor's note: Cost effectiveness is a crucial issue in determining suitability of this technology. There must be a sufficient throughput of raw material to justify the investment.
(IFT, 04/2014)

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Commentary: Using science to drive adoption of new technologies

Paul Weisenfel, vice president for Global Programs at RTI International, comments on the renewed interest in agricultural production shown by governments and the private sector. While many new technologies in agriculture are being touted as answers to the world's food security challenges, Weisenfel notes that the bulk of research has been expended on these new technologies with insufficient attention to determining how best to scale them up. According to him, what is needed is a combination of the hard and soft sciences to effectively get smallholders to use these new technologies on a large scale. Weisenfel suggests a focus on three broad areas of research that could dramatically increase uptake: (i) combination of technologies (both new and existing) that work best in particular agro-ecological zones; (ii) better tools to quantify and disaggregate the barriers to adoption; and (iii) sophisticated economic modelling to better understand the market dynamics that drive or inhibit adoption of technologies. With a market-led, design-centred approach – understanding the needs (expressed and latent) and modelling the markets' ability to respond – Weisenfel believes it is possible to guide

programmes to address market constraints to adoption.
(The Chicago Council on Global Affairs, 05/05/2014)

Engage farmers in agricultural research

Tom MacMillan, director of innovation at the Soil Association, Bristol, UK, and Tim G. Benton, who leads the United Kingdom's Global Food Security programme and is professor of population ecology at the University of Leeds, UK, argue that the next wave of agricultural innovation must be at smaller scales and engage farmers directly in scientific research efforts. Enhancing farmers' own R&D could reap big rewards for minimal extra cost as farmers everywhere are practical experimentalists who understand the idiosyncrasies of their land. Technologies not invented by farmers – new kit, seeds or chemicals – are almost always adapted by farmers to fit their circumstance but such essential contributions are rarely recognised in official assessments of agricultural R&D. These count farmers as users, rather than makers, of knowledge. Some of the best returns can come from helping farmers to assess their own ideas. Until now, such initiatives have been at arm's length from formal science, and almost exclusively in the developing world. The authors' involvement in a farmer-focused innovation programme in the UK has convinced them that such participatory R&D could also boost agricultural innovation in rich countries.
Editor's note: Interesting development. For many years this participatory R&D approach was promoted for the Southern research community and perhaps, with this development, it will be more widely embraced by all scientists striving to make a difference and enhance the impact of research.
(*Nature*, 03/04/2014)

African science, technology and innovation plan cleared for adoption

In April 2014 African science ministers met to sign off the Science, Technology and Innovation Strategy for Africa (STISA) – Africa's 10-year (2014-2024) blueprint for science, technology and innovation – ahead of the continent's presidential summit scheduled for 20-27 June 2014 in Malabo, Equatorial Guinea. The plan succeeds the Consolidated Plan of Action for science and technology (CPA), which has directed continental policy over the past decade. STISA addresses the weaknesses of the CPA, which too narrowly focused on R&D and fundraising, rather than using science to address Africa's problems. STISA was drawn up after a review of the CPA by a high-level panel, led by Calestous Juma and has a stronger focus on innovation and 'science for development' than its predecessor. The strategy is anchored in six priority areas which include 'Eradication of hunger and achieving food security'. Aggrey Ambali, of UA/NEPAD Science Technology and Innovation Hub (NSTIH), gave a presentation of STISA at the First Bio-Innovate Regional Scientific Conference (Ethiopia, February 2013).
(Lynda Nordling reports for *Research Africa*, 12/05/2014)

Science and technology audit aims to expand innovation

The Kenya Ministry of Education, Science and Technology seeks to audit its science and technology offering, riding on its growing role as a regional hub for emerging technologies. By auditing the science and technology sector, Kenya hopes to be better able to recruit a critical mass of skilled people – including technologists, scientists and engineers – seen as key to industrial growth and development.
(University World News, 24/04/2014)

Call for research universities to bring development in African continent

Dr Dlamini-Zuma, Chairperson of the African Union (AU) Commission, delivered a public lecture at the University of Pretoria on the role of research in African universities and how it can bring about development on the African continent. Dr Dlamini-Zuma said research universities, as producers and disseminators of knowledge, were critical to development and to building knowledge economies. She emphasised the need for a skills revolution to train thousands and thousands of professionals in a whole range of different fields such as urban planning, health, education, infrastructure, as well as in agriculture and agroprocessing. She called for more dynamic linkages and cross-fertilisation between industry, businesses, industrial policy and universities. Dr Dlamini-Zuma also called for building research universities in an African context with a concurrent drive to increase the number of PhDs within the continent and spoke on the need to create research centres of

excellence across the continent.
(University of Pretoria, 30/04/2014)

Call to invest in laboratory infrastructure

At the April 2014 meeting of the Open Agricultural Forum on Agricultural Biotechnology (OFAB) in Nigeria, agricultural biotechnology experts called on governments to invest in and develop laboratory infrastructures across the continent. Professor Baba Yusuf Abubakar, executive secretary of the Agricultural Research Council of Nigeria and Dr Jonathan Mufandaedza, chief executive and registrar of the National Biotechnology Authority of Zimbabwe explained that modern laboratory infrastructures were indispensable to the promotion of research, enabling testing, certification and innovative development of food products. Dr Nompumelelo Obokoh, chief executive of AfricaBio, said the continent must explore ways of mobilising resources to improve laboratory infrastructure and training scientists in agricultural research, such as public-private partnerships. Other experts argued that obstacles to scaling up research laboratory infrastructures included shortage of trained personnel, poor laboratory management systems, and lack of accessible and quality-assured laboratory services to support meaningful research in agriculture.
(*The Herald*, Zimbabwe, 02/05/2014)

How to improve the evaluation of research activity at universities

At a seminar organised by the Interuniversity Institute for Advanced Research on Science and Universities (INAECU), Rafael van Grieken, director of the Spanish National Agency for Evaluation of Quality and Accreditation (ANECA), spoke about the evaluation of research activity at universities. Van Grieken argued that the model of accreditation and evaluation of research at universities is characterised by being overly quantitative and by not sufficiently appreciating aspects such as professional activity and knowledge transfer. 'The model tries to evaluate quality, but ends up being very quantitative because of the regulatory framework, the secondary or indirect nature, the structuring (of knowledge) into large areas and the obligation to express it by points', explained van Grieken, who noted that knowledge transfer is not sufficiently appreciated in some areas while in others it is perhaps valued too much. According to him, there was a need to develop solid qualitative indicators to assess the universities' activities and impact. The purpose of the seminar was 'to help Spanish science improve, be competitive, on the basis of proposals of evaluation and of policies of incentive schemes for research activities'.
(Universidad Carlos III de Madrid, 07/05/2014)

Benchmarking survey of research uptake management in Sub-Sahara African universities

In May 2014 the DRUSSA programme (Development Research Uptake in Sub-Saharan Africa) released the summary report of its second comprehensive survey among the participating 24 African universities, covering institutional priorities, policies for research, staffing for research management and uptake, and current research and research uptake activities. The report compares the universities' 2014 responses to a 2012 survey and begins to map evidence of change of institutional research uptake capacity. Key findings include: strong leadership for institutionalisation; more dedicated posts, incentives for partnerships, and mechanism to assess impact; slow progress in putting recording systems in place; and low capacity in science communication and dissemination.
(DRUSSA, 06/05/2014)

Decoding EU science policy

To help learned societies and other scientific institutions decode the mysteries of the European Union in relation to science policy, Lisa Bungeroth, European Research Policy Officer at the UK Higher Education International Unit (IU), presented a simplified view of the processes behind higher education and innovation policy in the EU. The three bodies that interact to pass EU legislation are: the European Commission, the European Parliament, and the Council of Ministers. Once legislation has been proposed by the Commission, documents bounce back and forth between the Parliament and the Council of Ministers, taking any amendments into account. Bungeroth also highlighted four main policy frameworks relevant to science research in the EU: (i) EU 2020 – a 10 year strategy to make the EU the most competitive and dynamic knowledge-based economy in the world; (ii) Innovation Union – the flagship initiative of EU 2020 to promote innovation in

the EU; (iii) European Research Areas – the strategy to create a Europe-wide single market for research, innovation and knowledge; (iv) Horizon 2020 – the main funding programme for research and innovation.
(British Ecological Society, 01/05/2014)

Parliament rejects draft EU law allowing nanomaterials in food

On 20 March 2014, the European Parliament rejected the EC's proposed definition of nanomaterials added to food products. Lawmakers decided that the proposed definition would have exempted foods containing nanomaterial additives that are already on the market from being labelled as such. The parliament argued that allowing the word 'nano' in brackets on the labels would confuse consumers and suggested that these additives are new, which would therefore make them 'erroneous and irrelevant'. In addition, a month ago the Parliament's committee for Environment, Public Health and Food Safety (ENVI) had stated that the Commission's 50% nano-particles threshold for an ingredient to qualify as 'nano' was much too high. This definition, they argued, disregards the European Food Safety Agency's (EFSA) advice of a 10% threshold in light of ongoing uncertainty regarding the safety of nanomaterials.
(EurActiv.com, 12/03/2014)

Some EU legislation hinders the use of insects in animal diets

Emmy Koeleman, editor at AllAboutFeed.com, writes about the production, trade and use of edible insects as food and feed and the wide range of regulatory areas, from product quality assurance to the environmental impact of insect farming, that govern this sector. She argues that no clear legislation with respect to insect-based animal feed exists, raising questions on how the development of novel insect products are affected by the multitude of laws in the EU. She cites the work of the FAO in providing a first look at the regulations on the regulatory frameworks influencing insects as food and feed at international, regional and national levels. Her focus is on the processing aspects of using insects in animal feed, the early experiments and the promising avenues. The need for new protein sources with minimal environmental impacts is urgent and the EU should be pressed to develop an enabling legal framework to govern the sector, she argues.
(AllAboutFeed.com, 02/05/2014)

Scientists race to develop farm animals to survive climate change

A report in the Los Angeles Times details the efforts Carl Schmidt and his colleagues at the University of Delaware, USA, put into developing heat-resistant chickens. They are trying to map the genetic code of African naked neck chickens to see if their ability to withstand heat can be bred into flocks of US broilers.
Editor's note: Julius Kofi Hagan, at the Department of Animal Science, School of Agriculture, University of Cape Coast, Ghana, was awarded the third prize in the Young Professionals in Science competition for his research on developing chicken breeds that can be highly productive under the hot and humid environments of the tropics. The research undertaken in this breeding programme involved introducing two heat-tolerant genes – the naked neck (Na) and frizzle (F) traits – into chicken of the Lohman Brown, an imported bird of hybrid origin, to make them more productive in Ghana. How can the benefits from developing improved breeds in the US based on indigenous genetic resources from Africa be shared? What are the policy instruments? K4D has been advised by Prof Luke Mumba that there are a number of on-going efforts on the African continent to protect and at the same time sustainably utilise Africa's biodiversity and indigenous knowledge. Through the support of NEPAD/SANBio, the SADC Plant Genetic Resources Centre has published policy guidelines on Plant Genetic Resources for Food and Agriculture in June 2013 (spgrc.org.zm). At continental level, the AUC is working on Policy Guidelines to govern access, use and protection of biodiversity and indigenous knowledge.
(*Los Angeles Times*, 03/05/2014)

Novel plant bio-resources: Applications in food, medicine and cosmetics

Ameenah Gurib-Fakim is the editor of a book entitled *Novel Plant Bioresources: Applications in Food, Medicine and Cosmetics*, recently published by John Wiley & Son. The book serves as the definitive source of information on under-utilised plant species, and fills a key niche in the understanding of the relationship of human beings with under-utilised plants. After an introductory section which sets the scene with an overview of the historical and legislative importance of

under-utilised plants, the main four parts of the book are dedicated to the diverse potential application of novel plant bioresources in food, medicine, ethno-veterinary medicine and cosmetics. Examples and contributors are drawn from Africa, Europe, the USA and Asia. The economic, social, and cultural aspects of under-utilised plant species are addressed, and the book provides a much needed boost to the on-going effort to focus attention on under-utilised plant species and conservation initiatives. By focusing on novel plants and the agenda for sustainable utilisation, *Novel Plant Bioresources* highlights key issues relevant to under-utilised plant genetic resources, and brings together international scholars on this important topic.
(Wiley-Blackwell, 04/2014)

Knowledge management for improving policy and practice

Unmanned aerial systems in farming: a pilot project in Cuba

The popularity of unmanned aerial systems (UAS) is on the rise in many countries for a multitude of applications. In one such development, the UAS is rapidly becoming a tool for crop monitoring and management, which is essential for food security. GeoCuba has been successfully testing UAS technology for farming purposes. A pilot project conducted in Cuba in co-operation with the Russian firm Uniintex-Ginus has shown that a UAS is a flexible, low-cost solution, but it has also revealed some limitations. An UAS offers great flexibility to quickly acquire data in sufficient spatial resolution at low cost. However, the use of UASs is restricted to small areas. Moreover, flexibility has its limits as the use of a UAS for civilian applications is still subject to the same regulations as for manned aircrafts; permission must be requested a few days in advance.
(*GIM International*, 23/04/2014)

Mapping the yield gap to prioritise research and inform policy

In the study recently published in Nature Communications, researchers from the University of Nebraska-Lincoln, US, led by Patricio Grassini, assistant professor in the Department of Agronomy and Horticulture, analysed the trends of crop yields over the past four decades in 36 countries and regions. The study suggests that previous predictions of yield gain have been overly optimistic and that, in fact, yields in some areas have already reached a plateau. However, while yield gains follow a linear upward trend, there are interruptions and changes over time and world regions. For some of the most productive areas around the world, yields have not increased for one or two decades and further steady gains in yield in these regions are unlikely. The researchers noted that such plateaus also occur at very low yields in some developing regions of the world. Citing the example of maize in sub-Saharan Africa, very low yield plateaus are not due to a biophysical limits (unlike wheat in Western Europe or rice in China), but to external obstacles. In these regions, there is more opportunity to increase yields through use of technology and smart public investment (see ACIAR publication above). Grassini and colleagues from the University of Nebraska-Lincoln and Wageningen University are currently working on a project called the Global Yield Gap Atlas. The project aims to estimate yield potential for cropping systems around the globe and compare potential yields to actual yields in order to estimate yield gaps. Mapping areas where the yield gap is large can help prioritise research and inform agricultural policies.
Editor's note: We know that there is a yield gap in some regions and in other regions, countries have reached their optimum yield potential. Will the Global Atlas also tell us what are the existing technological options and financial investments needed for increasing productivity to provide nutritious food at affordable prices while ensuring that smallholder farmers can earn reasonable incomes?
(Crop Science Society of America, 25/04/2014)

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Guidelines for assessing nutrition-related knowledge, attitudes and practices

The FAO *Guidelines for assessing nutrition-related knowledge, attitudes and practices* is a reference guide and practical tool for conducting high-quality surveys of nutrition- and health-related knowledge, attitudes and practices (KAP) at the community level. The manual is written for people in charge of planning, implementing and evaluating food security and nutrition projects; these include project managers, nutritionists, health workers, planning and evaluation specialists and

many others. The manual includes definitions and key indicators for nutrition- and health-related knowledge, attitudes and practices. It provides useful guidance for planning and conducting a KAP survey, and for analysing and reporting the survey results. The manual also provides model questionnaires (modules) to help standardise survey efforts across the world.
(FAO, 2014)

Hotspots of climate change impacts in Africa: Making sense of uncertainties

A study published in *Global Change Biology* by Christoph MÃ¼ller and colleagues of the Potsdam Institute for Climate Impact Research (PIK), Germany, presents a map of hotspots of climate change impacts in Africa to help guide regional food security interventions. The researchers explored the spread of climate change impact projections and develop a composite impact measure to identify hotspots of climate change impacts, addressing likelihood and strength of impacts. They found that overlapping impacts in different biosphere properties (e.g. flooding, yields) will not only claim additional capacity to respond, but will also narrow the options to respond and develop. However, each hotspot must be evaluated case-by-case, the authors argue, and a continental scenario analysis like this one is not a blueprint for adaptation: only with local expertise can such a tool help to decide where to best put the limited resources allocated to climate adaptation.
(PIK, 06/05/2014)

Novel system to detect, track and monitor agricultural drought conditions

To trace the dynamics around agricultural drought in the United States, Qiusheng Wu, a doctoral student and research assistant and Hongxing Liu, professor, both at the Department of Geography, University of Cincinnati, US, implemented an Event-based Spatial-Temporal Data Model (ESTDM) to detect, track and monitor drought conditions. The framework organised data into objects, sequences, processes and events. The data was collected from the European Space Agency's (ESA) Soil Moisture and Ocean Salinity (SMOS) satellite, which was the first of its kind dedicated to measure moisture near the surface of the soil. The researchers examined patterns of spreading drought to develop predictions for future drought events. The prediction tool is now being prepared to use data from NASA's soon-to-be-launched Soil Moisture Active Passive (SMAP) satellite.
(University of Cincinnati, 4/8/2014)

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Cameroon: understanding the range of perspectives that influence food security policy

In this article, Adam Sneyd, political scientist at the University of Guelph, Canada, argues that Cameroon could achieve a more sustainable and equitable food system if greater policy attention were directed toward understanding the range of perspectives that compete to influence food security policy. Assessing the 'footprint' of new interests in this area, Sneyd's analysis suggests that food security policy in Cameroon could be more responsive to the ways new sources of finance, direct investment and trade affect differential impacts on the local availability, accessibility and adequacy of food. For example, a more participatory policy regime would reflect contrasting opinions and enhance policy on each dimension of food security. The author concludes that decision-makers will need to assess local perspectives on the potential multidimensional food security footprint of financial deals, direct investments or trade relations in order to secure the sustainability of the sector.
Read Sneyd's Policy brief.
(*Sustainability*, 09/04/2014)

Monitoring and evaluation for climate change adaptation and resilience: A synthesis of tools, frameworks and approaches

This report published by the SEA Change (Vietnam) and UKCIP (UK), is a synthesis and summary of frameworks for the monitoring and evaluation (M&E) of climate change adaptation and resilience (CCAR) interventions, with a specific focus on international development projects and programmes. The objective of this report is to: (i) provide an easy-to-read synthesis of current adaptation and resilience M&E resources, frameworks, and approaches so that practitioners are able to more easily identify the information and tools that are most relevant to their needs; (ii) provide a short analysis of the

'state of play' of adaptation and resilience M&E guidance, identifying key themes and reflecting upon gaps and future priorities. The synthesis exposes a considerable overlap between some of these M&E frameworks, but also very important differences in approach, methodology, and intended audience. Among the key findings was a strong demand for an overarching, comprehensive document that would help M&E practitioners and CCAR programme managers understand the state of play of CCAR M&E, and also provide guidance in choosing which materials are best suited to the needs at hand.
(SEA Change CoP, 15/05/2014)

New resource to tackle threat of wheat stripe rust

The new Regional Cereal Rust Research Center based in Turkey, will offer strategic support to farmers and countries affected by the growing threat of wheat stripe rust and other rusts – providing race analyses of cereal rusts; tracking the movement of wheat rust pathogens; and screening wheat varieties for resistance and susceptibility. and serving countries across the region. The Regional Center, a partnership of the Turkish Ministry of Food, Agriculture, and Livestock and the International Center for Agricultural Research in the Dry Areas (ICARDA), is currently evaluating some 16,000 types of wheat received from countries worldwide who have sent their plants to be evaluated for levels of resistance or susceptibility to rust.
Editor's note: Jemanesh K. Haile, at the Ethiopian Institute of Agricultural Research (EIAR), Addis Ababa, Ethiopia won the top prize in the Young Professionals in Science competition for her article on the QTL conferring resistance to Ethiopian stem rust in durum wheat.
(ICARDA, 21/05/2014)

New Pan African University Institute of Water and Energy Sciences

The Pan African University Institute of Water and Energy Sciences (PAUWES) is hosted by the University of Tlemcen in Algeria. PAUWES offers two world-class graduate programmes, a Master of Science in Water and a Master of Science in Energy. The Institute provides state-of-the art facilities, cutting-edge technical and policy knowledge from its internationally renowned faculty and experts, as well as networking opportunities and scholarships for students and researchers.
(PAU, 2014)

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New research findings on agricultural water use and adaptation in Africa

Working with national partners in Malawi, Mozambique and Zambia, WorldFish, the International Water Management Institute (IWMI) and the University of Osnabruck (Germany) have released the results of an analysis of climate change adaptation in food production in the Chinyanja Triangle in southern Africa. The project has identified a number of shifts in agricultural practices in response to climate-related changes. As weather becomes less predictable, local communities have embraced fish farming and small-scale irrigation. In response to reduced rainfall, farmers are increasing water storage and do not drain their ponds for longer periods of time. Communities endowed with a surplus of land have also begun to trade with communities with more water resources. While these changes have helped mitigate some of the effects of climate change, the researchers found that increases in irrigation and aquaculture are straining local water supplies. The project recommends that farmers plant trees along the rivers to increase shade cover, decrease evaporation, and reduce erosion. Other best practices include: distancing crops from the streams' banks to decrease siltation; creating ridges to slow run-off; and planting crops earlier to make use of residual moisture.
(IISD, 04/2014)

Obstacles to integrated pest management adoption in developing countries

Soroush Parsa, at International Center for Tropical Agriculture (CIAT), Cali, Colombia and an international team of researchers, gathered the opinions of a large and diverse pool of Integrated Pest Management (IPM) professionals and practitioners from 96 countries to understand the low adoption rate of IPM among farmers. Analysis of responses revealed many unique statements on obstacles, the most frequent of which was 'insufficient training and technical support to

farmers'. The obstacles were grouped into six themes: research weaknesses, outreach weaknesses, IPM weaknesses, farmer weaknesses, pesticide industry interference, and weak adoption incentives. Respondents from developing countries and high-income countries rated the obstacles differently. As a group, developing-country respondents rated 'IPM requires collective action within a farming community' as their top obstacle to IPM adoption. Developing-country participants appear to worry significantly more about weaknesses inherent within IPM itself. The authors believe the findings highlight the value of improving the active participation and representation of developing-country experience and perception in the IPM adoption debate.
(*PNAS*, 24/02/2014

New guide to help reduce pesticide pollution in aquatic ecosystems

In Europe, the Sustainable Use of Pesticides Directive requires EU Member States to develop National Action Plans with objectives, targets and measures to reduce the risks associated with applying pesticides. This study describes a new user guide to identify suitable measures to reduce pesticide pollution at the stream catchment scale. The guide was developed in Germany and it focuses on pesticide contamination via spray drift and surface runoff. Drainage through the soil from agricultural land was not included in the guide. The first step in the guide is to survey and map the catchment landscape for relevant features, including vegetation buffer strips, the type of buffer vegetation, the slope of agricultural fields and 'flow paths' that concentrate runoff, for example, gullies formed by soil erosion or drainage ditches. The next step involves using an 'identification key' to assess the potential for pesticides to enter water bodies, based on information in the landscape survey. The guide gives details of how effective such measures are in reducing exposure, and how feasible and acceptable such measures are likely to be. Users of the guide can compare the different measures to decide which measure or combination of measures to adopt.
(European Commission DG Environment News Alert Service, 01/05/2014)

Field guide to non-chemical pest management in cowpea production

The Pesticide Action Network (PAN, Germany) is supporting non-chemical pest management on tropical crops that are commonly grown by small landholder farmers through the project 'Online Information Service for Non-chemical Pest Management in the Tropics' (OISAT). OISAT is a web-based information system to distribute information on non-chemical pest management for small-scale farmers in the tropics and sub-tropics. This field guide provides farmers with practical guidelines and alternatives to eliminate the use and their dependence on synthetic pesticides for the management of cowpea pests.
Editor's note: Clementine L. D. Binso, of INERA, Burkina Faso, won a top place in the 3rd Africa-wide Women in Science competition for her work on hermetic triple bagging technology for cowpea storage.
(PAN, 2014)

A sourcebook for decision makers on how to improve livestock data

This sourcebook on livestock data, published by the World Bank, FAO and ILRI, summarises the activities and outputs of the Livestock in Africa: Improving Data for Better Policies project. It provides guidance to decision makers responsible for collecting and analysing livestock data from different perspectives on how to systematically address livestock data-related issues within the context of the national agricultural statistical system. In particular, it first develops the skeleton of a sound livestock statistical system – consistent with the demand of livestock information by stakeholders and the principles of the Global Strategy to Improve Agricultural and Rural Statistics (World Bank, 2011). It then presents a sample of methods and tools – and associated examples – designed to improve the quantity and quality of livestock data available to decision makers.
(FAO, 2014)

Food traceability systems: differences in willingness to pay for food safety

In a paper presented at the 2014 International Conference on Food Security and Nutrition, Francesca V. Hansstein of the Shanghai University of Finance and Economics, China, investigates recent findings on consumer knowledge and attitudes towards food traceability across the European Union (EU), China, and North America. A critical review of academic articles

published between 2003 and 2013 was performed and a total of sixteen studies were selected. Results indicated that consumers are paying increasing attention to food safety and quality but they are still unfamiliar with the concept of traceability, especially in China. Willingness to pay for food safety differs across countries and segments of population. Age, education, income and food safety concerns are the factors that mostly influence consumer acceptance of traceability and its attributes. Hansstein recommends that both producers and policy makers should work together to increase consumer awareness about the benefits offered by Food Traceability Systems.
(AgEcon Search, 2014)

Information technology applied to the process of traceability in the wheat supply chain

The adoption of traceability systems in the food chain is a market differentiator for manufacturing firms. It is appreciated by consumers and is increasingly common after the occurrence of certain problems related to food consumption. Legislation, quality standards and best practices now govern the traceability process. This paper by Monica Sherer and Maria Gomes of UEPG, Brazil, addresses the main regulations that establish procedures for ensuring the safety of food in terms of traceability, and also presents the evolution of information technologies in this area. Although, the latter are still being developed, there are still many opportunities for growth and innovation. As a result, it is possible to see the commonalities between the models of traceability, and also to identify the points of the supply chain of wheat in which the processes are focused.
(*African Journal of Agricultural Research*, 24/04/2014)

New fisheries monitoring system unveiled

The Namibia Minister of Fisheries and Marine Resources, Bernard Esau has urged all fishing companies that have not yet installed the Vessel Monitoring System (VMS) of the ministry to do so urgently. The VMS, that monitors activities of fishing vessels at sea, was acquired and installed in 2002, but became obsolete over the years and was unable to perform to the ministry's satisfaction. The ministry then started to explore possibilities of upgrading the system to acceptable international standard and acquired the present system. With the upgraded system the ministry is now able to track all licensed fishing vessels operating both in Namibian, as well as in international waters. The VMS supplements monitoring, control and surveillance through area control and science by way of the mapping of fleet dynamics.
(*New Era Namibia*, 17/03/2014)

Senekela: new mobile information services for Malian farmers

Senekela is the new mobile information service for Malian farmers developed with the help of IICD, Orange Labs, RONGEAD and the Malian Institute of Rural Economy (IER). The 24-hour information service comprises an SMS/USSD information service and a call centre, serviced by specialised agricultural experts. It provides information on the prices in different markets in the regions of Sikasso and Koulikoro, and information on crops such as corn, shea butter, onion, cashew and shea nuts.
(IICD, 02/04/2014)

EC launches pilot to open up publicly funded research data

Valuable information produced by researchers in many EU-funded projects will be shared freely as a result of a Pilot on Open Research Data in Horizon 2020. Researchers in projects participating in the pilot are asked to make the underlying data needed to validate the results presented in scientific publications and other scientific information available for use by other researchers, innovative industries and citizens. The Pilot on Open Research Data in Horizon 2020 does for scientific information what the Open Data Strategy does for public sector information: it improves and maximises access to and re-use of research data generated by projects for the benefit of society and the economy.
(European Commission, 16/12/2013)

Dryad Digital Repository: making the data underlying scholarly publications accessible and reusable

The Dryad Digital Repository is a curated resource that makes data underlying scientific publications accessible, freely

reusable, and citable. Dryad provides a general-purpose home for a wide diversity of data types. Non-profit membership is open to any stakeholder organisation, including but not limited to journals, scientific societies, publishers, research institutions, libraries, and funding organisations. Publishers are encouraged to facilitate data archiving by coordinating the submission of manuscripts with their data to Dryad. Dryad originated from an initiative among a group of leading journals and scientific societies in evolutionary biology and ecology to adopt a joint data archiving policy (JDAP) for their publications, and the recognition that easy-to-use, sustainable, community-governed data infrastructure was needed to support such a policy.
(Dryad, 2014)

Integrated coastal management: lessons in capacity building and good governance

This issue published by START International (Global Change System for Analysis, Research and Training) explores prevailing knowledge on the policy nexus between coastal management and coastal adaptation, with special emphasis on the Integrated Coastal Zone Management (ICZM) framework in promoting the health of marine and coastal ecological systems. ICZM provides a framework for sustainably managing the coast by supporting spatial and sectoral integration and coordination of activities in the coastal space.
(START International, 19/02/2014)

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Venue: Honolulu Hawai'i

Animal Agriculture: the next frontier for the youth in Africa

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Venue: Kenyatta International Conference Centre, Nairobi, Kenya

Second International Conference on Nutrition (ICN2)

Dates: 19-21 November 2014
Venue: Rome, Italy

Agriculture and Climate Change: Adapting Crops to Increased Uncertainty

Dates: 15 - 17 February 2015
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PhD position in marine governance - ZMT Bremen

In the frame of the research project REPICORE (Resilience of South Pacific coral reef social-ecological systems in times of global change), a PhD position in marine governance will be available from September 1 on at ZMT Bremen.

2014 Call for Applications for Funding, Asia-Pacific Network for Global Change Research (APN)

Deadline for submission of Summary Proposal or EOI: Sunday, 3 August 2014

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