In this issue

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This issue consists of eleven papers, a conference report and several book reviews.

Bekele Shiferaw and co-authors review wheat, the 10th in our series, Crops that Feed the World. While pointing out the unprecedented growth of productivity as a result of the Green Revolution, they caution that this has now slowed or is static. The future will require production and adoption of genotypes that are tolerant of heat and drought stresses, economical in the use of water, fertilizer, labour and fuel and, critically, pest and disease resistant. This last point requires emphasis as pests and pathogens are not static but living organisms that are constantly evolving. Frequently, by doing so, they overcome the resistance that may have been bred into their host plants at considerable expense in terms of labour and money. Biotypes of the stem rust fungus of the Ug99 lineage, which threaten wheat production in the Indian sub-continent, are but one example. Another example is a complex disease of wheat resulting from infection by two fungi, *Pyrenophora tritici-repentis* and *Stagonospora nodorum*. Control by fungicides is an option in Australia where the disease is prevalent but how effective are they? Kawsar Salam and associates performed a meta-analysis on a large data set and concluded that fungicide application allowed a gain in yield of 297 kg ha⁻¹.

The next paper by Derek Headey and Olivier Ecker of the International Food Policy Research Institute (IFPRI) with the title ‘Rethinking the Measurement of Food Security: From First Principles to Best Practice’ is a core issue for this journal. They determined how effective calories, poverty, dietary diversity and subjective indicators are as metrics of both food and nutrition security. The overall conclusion was, perhaps surprisingly, that dietary diversity indicators are best as they are powerful predictors of economic status and malnutrition (both stunting and wasting), sensitive to shocks and relatively cheap to measure.

Climate change is the backdrop of the next two papers. Jill Cairns and associates, taking the prediction of 19 global climate models of an average rise in temperature in the

range of 2.4 °C to 2.6 °C in sub-Saharan Africa by 2050, advocate screening germplasm of maize for drought resistance under high temperatures. This is because tolerance to combined drought and heat stress is genetically distinct from tolerance to each stress individually, and tolerance to either drought or heat stress does not confer tolerance to their combined effect. Post-harvest losses of crops are a neglected area of research relative to their scale. Tanya Stathers and associates point out that there has been little discussion of the effect of climate change on post-harvest agriculture, particularly in Developing Countries. Higher temperatures and humidity may lead to greater contamination of stored crops by mycotoxins and increased infestation by insects.

Yibo Luan and co-workers draw attention to the precipitous decline in self-sufficiency on the African continent from the 1960s to the mid-1980s. After which, self-sufficiency still declined, albeit at a lower rate up to the present time. During the whole period the gap between consumption and production widened. Thus Africa’s food self-sufficiency is lower today than it was throughout the entire period of the study, probably as a result of increased population. There follows a paper by Dare Akerele and associates concerning the food security of 80 households, consisting of 321 members, in Ado-Ekiti in the South-West of Nigeria. Using calorie consumption as their metric, they concluded that food insecurity was widespread but of low severity. They also make the point that, because of Nigeria’s high earnings from the oil industry, the country has been content to import over \$3 billion’s worth of food annually rather than develop agriculture despite the country’s favourable environment for growing crops.

Although demographic expansion is one explanation for food insecurity in sub-Saharan Africa there are many other causes. Ruth Haug and Joseph Hella assess the underlying factors that are likely to prevent Tanzania from attaining the first of the UN Millennium Development Goals viz. Eradication of Extreme Hunger and Poverty by 2015. They essentially support the analysis of the United Nations Development Programme, which attributes this to misguided policies, failing markets and weak institutions. However, they point out that the government has the difficult task of

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balancing national food availability with affordable food prices for urban and rural consumers. Two aspects, which affect markets, are the poor quality of roads and cost of transport. The authors give, as an example, the transport of maize from Chitego to Dar es Salaam, a distance of about 500 km, during which trucks had to pass through 10–15 checkpoints. These ranged from tax collection to traffic checks and weigh bridges. At all these checks both official and unofficial cash payments were made. The problem of poor roads is taken up by Rose Fiamhoe and associates in their paper, which contrasts local rice markets in Benin and Mali. They found that the high transaction costs in Benin associated with the long distance and bad state of the road, linking the surplus market to the consumption market, were likely to be one component that influenced local rice markets in Benin. They suggest that investment in public infrastructure such as roads would promote the vertical integration of local rice production with marketing and thus improve rice farmers' food security and wellbeing.

Shenghui Cui and co-authors review the arable land versus urbanization situation in China in the context of the country having 22 % of the world's population but less than 9 % of its arable land. On a per capita basis this works out at 0.09 ha, far below the world average of 0.22 ha capita⁻¹. The situation is exacerbated by increasing urbanization and changing diets, the latter involving more meat products. These require greater land resources than a more plant-based diet. The authors suggest three approaches to relieving the pressure on arable land: consumption patterns should be changed to more plant-based food, import of land-intensive food should be increased and there should be investment in agricultural research and development.

In most countries, safety nets are essential for the survival of the poorest sections of the community. Food subsidies are an important part of such safety nets, particularly in Developing Countries, but can be costly. Part of the reason for this is that subsidies may be poorly targeted and consequently benefit non-needy sections of the population. According to Abdoulkarim Esmaili and co-workers, non-needy urban and rural groups in Iran receive 56 and 65 % of the benefit from the food subsidy programme there. The authors suggest that replacing the existing programme with one aimed at foods consumed heavily in low-income households would reduce government expenditure by 4.4 %, whereas replacing it with a cash transfer targeted to poor households would reduce the expenditure by 3.1 %. However, the

authors also report that the Iranian government is considering the elimination of all subsidies, including those for food!

A very successful International Conference was held at the University of Hohenheim, Germany in March 2013 and was attended by 350 participants from all over the world, including 100 from Africa and Asia. The subject was Hidden Hunger, the syndrome by which people, although not suffering from calorie or protein deficiency, lack certain micronutrients or vitamins. There were 125 presentations, 80 posters, 25 keynotes and 3 panel discussions. Aspects of the subject presented and discussed included assessment, medical impact, reasons, solutions and future perspectives in both developing and developed countries.

As usual, the issue is rounded off with several book reviews. The first is by Peter Gregory concerning a volume from the International Food Policy Research Institute edited by Paul Dorosh and Shahidur Rashid with the title 'Food and Agriculture in Ethiopia—Progress and Policy Challenges'. There is good news in the book as the country appears to be becoming much less food insecure but the editors warn that "Food security is likely to be a challenge for decades given the country's susceptibility to droughts and other shocks. Successful policy will mean avoidance of large-scale famines when production shortfalls occur and improvements in availability, access and nutrition at national and household levels".

David Castle reviews 'Making seafood sustainable: American experiences in global perspective' by Mansel G. Blackford. The author makes three telling observations: that the decline or collapse of a fishery never comes as a complete surprise; that cognition of a fishery resource progresses from realizing it is abundant, of low value and worth exploiting, to thinking it is of high value and worth protecting; and thirdly that legislation to cope with sustainability has lagged behind declining stocks and has not been altogether successful in securing their future.

Finally our book review editor, David Ingram, gives snapshots of five books under the heading 'Books in Brief'. They are 'Agricultural Policies for Poverty Reduction', 'Shifting Cultivation and Secondary Succession in the Tropics', the 'Annual Review of Phytopathology, Volume 50', 'Harvesting the Sun—A Profile of World Horticulture' and the last with the simple title 'Vegetables' by Evelyne Bloch-Dano (translated from the French by Teresa Lavender Fagan) but giving a wonderfully rounded view of the social, cultural and culinary use of ten vegetables widely used in European kitchens.