

## In this issue

Richard Strange<sup>1,2</sup>

Published online: 20 August 2015

© Springer Science+Business Media Dordrecht and International Society for Plant Pathology 2015

This issue contains 10 original papers and two book reviews.

The first two papers are concerned with China and the availability of water for agriculture. In the first of these, Huang Feng and co-authors analysed the amount of water used for agriculture during the period 1998–2010, using a combination of provincial statistics and modelling. Already 12 of the 13 ‘breadbasket provinces’, which produce 74 % of the national grain output, currently have water shortages and face increasing competition from non-agricultural sectors. Moreover, during the study period, there has been a declining trend nationally in precipitation and renewable water resources. Set against this is the more optimistic finding that, over this period, there has been a 19.3 % increase in crop water productivity (CWP). Depending on this statistic, it is estimated that China will require between 510 and 680 km<sup>3</sup> of water for food production by 2020. In the second paper, Lechan Yang and co-authors report on rice yields in relation to climate variables in the Middle and Lower reaches of the Yangtze River Basin, one of the most important rice production regions in the world. In their model the most dramatic effect was a reduction in the yield of early-planted rice in the scenario when precipitation was abundant. Here, because of the increased number of rainy days, solar radiation and temperature were reduced to values below those optimal for the growth of rice. Other findings were that an increase in the minimum purchase price of rice

provided an economic incentive for farmers to increase yields but their ability to adapt to climate change has decreased.

The next two papers are concerned with the cultivation of maize and wheat in Ethiopia and India, respectively. Tsedeke Abate and co-authors discuss the factors that have led to the phenomenal annual rate of yield gain in maize of 68 kg/ha between 1990 and 2013, resulting in the current estimated yield of >3 metric tons/ha. They attribute this remarkable result to improved varieties of the crop, increased use of mineral fertilizers, absence of devastating droughts and availability of extension services. Regarding the last of these, the authors point out that Ethiopia’s extension worker to farmer ratio is 1:476, compared to 1:1000 for Kenya, 1:1603 for Malawi and 1:2500 for Tanzania. It is perhaps worth noting that the necessity of efficient extension services is a recurrent theme in the pages of this journal as is the importance of sustained investment in agricultural research. Alwin Keil and co-authors, following up a meta-analysis which questioned the yield benefits of zero tillage (ZT), especially when permanent soil cover with crop residues is not maintained, undertook controlled-condition field trials in the Indo-Gangetic Plains (IGP) of India. They found, in contrast to the meta-analysis, that a random sample of 1000 households, cultivating wheat without full residue retention, benefited substantially from ZT, averaging 498 kg ha<sup>-1</sup> (19 %) yield gains across different agro-ecological zones.

The final six papers are all concerned in different ways with access to appropriate nutrition: the role of dairy; distance from food sources; dietary diversity; the roles of income and food prices; markets; and food security policies.

Sintayehu Yigrem Mersha and co-authors studied under-five year old children of cattle-owning households in Ethiopia. They found that dietary diversity scores were low (4.6±1.3) and consisted mainly of maize, *Enset*, green kales and milk products. Although cows’ milk was important, there were many other factors which affected the children’s nutritional

---

✉ Richard Strange  
r.strange@sbc.bbk.ac.uk

<sup>1</sup> University College London, Gower Street, London WC1E 6BT, UK

<sup>2</sup> Birkbeck College, University of London, Malet Street, London WC1E 7HX, UK

status: these included per capita farmland size, family size, access to clean water, crop diversity, dependency ratio, live-stock holding, cash income, literacy of household head and distance to public health centres. The authors therefore advocate holistic approaches to food and nutritional security.

Spatial aspects of food access in the municipality of Dorset in Tasmania, Australia were studied by Quynh Lê and co-authors. They located 'food deserts' which, by definition, refer to areas where there are both physical and economic barriers to healthy food. These were areas where people had socio-economic scores in the lowest quintile and were located outside a 1 km zone along a road to any healthy food outlet i.e., food outlets were not within easy walking distance. Such areas occupied about half the Dorset region.

As Shinoj Parappurtha and co-authors state, dietary diversity is an indirect measure of diet quality and the extent to which nutritional needs of households are met. In a study of 12 villages in Eastern India they showed that a number of factors contributed to high dietary diversity scores. These included being a member of a large household with high purchasing power and a well-educated male head. An indirect factor was access to the Public Distribution System where food items are cheaper, releasing money, which could be spent on more diverse dietary ingredients. Conversely, being a member of a scheduled caste or scheduled tribe and therefore of low social status diminished dietary diversity scores. The authors conclude that, in order to improve dietary diversity and nutrition security, interventions should take full account of the socio-economic situation of the target population.

The Indian Public Distribution Service also features in the next paper by Sumit Mahajan and co-authors, where it is thought to be one of the causes of lower food prices in rural as opposed to urban areas. These authors used the National Sample Survey data of 2009–2010 to analyse the effect of rises in food prices on calorie and protein intake in India. One concern was the greater amount of fats and reduced amounts of protein in urban regions. Another was the highly negative effect of price increases for milk and pulses on calorie intake. Consequently, the authors call for inclusion of pulses in the Public Distribution Service.

Frank Davenport and Chris Funk point out that two components of food security monitoring are accurate forecasts of local grain prices and the ability to identify unusual price behavior. Using characteristic based clustering, they compared maize prices in Kenyan markets. The markets of Manderu and Marsabit had become increasingly dissimilar to those of other Kenyan cities and these differences could not be explained by geographical isolation alone. Field studies showed that these markets lacked integration and consequently people living in these areas may lack food security.

The final paper by Muhammad Bashir and Steven Schilizzi assesses the effectiveness of food security policy in the Punjab area of Pakistan. They proposed a conceptual model in which two demand side policies, food subsidy and minimum wage, and two supply side policies, wheat support price and urea subsidy were examined. Food subsidy and wheat support price improved farmers' household food security but they were poorly implemented. Moreover, farmers' perceptions of these subsidies were at variance with their actual financial gain, usually grossly underestimating it.

Peter Gregory reviews three publications from the International Food Policy Research Institute: *The 2014–2015 Global Food Policy Report*, *The Global Hunger Index* and *The Global Nutrition Report 2014*. He finds that together these reports give a comprehensive overview of the state of global food security in 2014, pointing out the successes achieved and also the many difficulties that still lie ahead. With around 800 million short of calories, 2 billion suffering from hidden hunger (lack of one or more vitamins or micronutrients) and 1.5 billion overweight, it is clear that we have a long way to go before the world's human population, currently 7.3 billion, has a healthy diet.

Ulrike Grote found C. Peter Timmer's book *Food Security and Scarcity: Why Ending Hunger is so Hard* a good read which distils four decades of personal experience in teaching and research of the subject in 177 pages. Certainly few are likely to disagree with his conclusion that it will only be possible to end hunger with political determination, good governance and effective policy-making.