In this issue

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This issue marks the change of Editor-in-Chief from Richard Strange to Serge Savary. After co-founding the journal with Peter Scott and acting as EiC for 10 years I am delighted to hand over this job to Serge, in whose capable hands I am sure that the journal will prosper and continue to accrue substantial sums of money for the International Society of Plant Pathology. I am also very pleased to welcome two new Senior Editors, Michael Dibley and Reimund Rötter who are introduced by Serge. They have responsibility for Nutrition and the Physical Environment, respectively. The issue also contains the customary thanks to Editors and Reviewers, although owing to recent legislation (GDPR) names have had to be omitted. There is also another customary item, Alerts for Policy Makers. The aim of this item is to draw attention to papers describing projects that have successfully improved food security in limited areas and which could advantageously be applied elsewhere.

After these preambles there are two review papers, 13 original papers, a report of the International Congress of Plant Pathology, held in Boston, USA during the summer of 2018, and two book reviews. The two review papers are both concerned with plants as befits a journal concerned with food security and recalls to my mind the succinct statement made in a Food Security paper, “No raw material no profit” (Barling and Duncan 2015). One might equally say, “No plants no food”! The next three papers deal with conditions under which plants grow. Nutrition is essentially the topic of the three succeeding papers and these are followed by two papers dealing with processing of food crops. Topics of the next two papers come from Ethiopia and are concerned with livelihood strategies and human-plant relations. On a similar theme, but specifically concentrating on food security, the next two papers deal with experiences of food insecurity in three African countries. The last paper is an econometric one about export taxes, food prices and poverty and is succeeded by a report on

the Plant Pathology Congress and mention of the two book reviews.

In the first review paper, Jefferson Asprilla-Perea examines the role wild foods play in households located in tropical forest areas. He found that forest plants and also fungi and animals are important sources of food and also generated income for communities. However, two challenges to be met are the negative effect on species conservation and the consumption of such foods without testing for their safety and nutritional properties.

The second review paper by Conny Almekinders and co-authors investigates why interventions in the ‘seed’ systems of root, tuber and banana crops do not reach their full potential. In fact, the species studied, cassava, banana, potato, sweet potato and yam, with the exception of breeding programmes, are vegetatively propagated rather than by true seed. The authors show that farmers’ demand for such vegetative material is of paramount importance and that this affects the sustainable supply of quality propagative material from specialized producer-entrepreneurs. However, in case studies they found that interventions were seldom designed with a full understanding of such issues: in particular, little attention seems to have been paid to what types of interventions work for which actors and where and why.

In the first of the original papers, Gregory Scott and co-authors used an economic model linked with a set of crop, climate and water models to estimate potato supply in India for the period 2010 to 2030 according to three scenarios: high, moderate and slow growth. The high growth model would increase potato production from just over 36 million metric tonnes to around 73 million metric tonnes (variation according to the climate model adopted), and the low growth model to around 60 million metric tonnes with again some variation according to climate model. The nutritional benefits of such increases in potato production could be enormous, particularly if varieties with improved nutritional qualities were adopted such as high vitamin A and E content.

Considerable suffering occurs in East Africa owing to chronic food insecurity and some of this can be avoided if indicators of food deficit are monitored in advance. Erin

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Coughlan de Perez and co-authors showed that one such indicator, 6 months of rainfall data, can predict a heightened risk of food insecurity 6 months before conditions deteriorate. They also showed that development of crisis levels of food insecurity is affected by the type of livelihoods practised, with pastoralists being most affected by low rainfall.

Jonne Rodenburg and co-authors point out that weeds are the fiercest competitors of rice. They surveyed 20 countries and 1965 farmers in sub-Saharan Africa in order to collect data on weed management and 17 countries for the availability of herbicides. Herbicides were used by 34% of farmers, but always as a supplement to hand weeding, and reduced yield losses by 0.4 t ha^{-1} . Use of herbicides was sub-optimal owing to a plethora of brand names (55 and 41 for glyphosate and 2,4-D, respectively, the dominant herbicides used) and lack of information about their best method of application.

In the first of the three papers concerned with nutrition, Jean Ambagna and co-authors compared two methods of measuring trends in the prevalence of undernourishment: Household Consumption and Expenditure Surveys (HCES) and FAO Food Balance Sheets, which measure food availability and undernourishment at country level. HCES, based on two Cameroonian Household Surveys (ECAM), gave values for undernourishment as 38% and 24% for 2001 and 2007, respectively, whereas the comparable figures for FAO estimates were 29% and 17%, respectively. The authors point out that ECAM allowed disaggregation of trends in the prevalence of undernutrition by area of residence and region, which would enable more precise targeting of vulnerable areas and disadvantaged segments of the population.

Dietary transitions and their drivers are of considerable concern, particularly in relation to their nutritional value. Victoria Reyes-García and co-authors studied dietary transitions among three contemporary hunter-gatherers across the tropics, surveying societies from Cameroon, Bolivia and Indonesia. They found that people living in isolated villages had more diverse diets than those living in villages closer to markets. Alarming, the availability of nutritionally important foods (i.e., fruits, vegetables and animal products) decreased with increasing market integration, while availability of fats and sweets increased.

Catherine Happer and Laura Wellesley claim that the livestock sector is a major driver of climate change, accounting for 14.5% of anthropogenic greenhouse gas emissions and that meat consumption is likely to rise by 76% by the mid-century. They investigated the role that media might play in influencing perceptions of climate change and meat consumption in the UK, USA, China and Brazil. Important factors were trust and credibility of scientists and other experts but see Mallinson et al. (2018) for the lack of influence of these in the context of another contentious issue, genetic modification. However, the authors conclude that where public awareness is low there is “the potential to construct a media narrative

around the benefits of dietary change” which could “stress the co-benefits across both health and environment”.

In the first of the two papers dealing with processing of crops, Emmanuel Alamu and co-authors point out that cassava is the second most consumed staple after maize in Africa and it is the main food security food crop after maize in Zambia. However, in this country, there has been little change over the last two decades in cassava processing and product development, the only equipment that was often used being the hammer mill. They suggest that there should be greater effort put into supporting the Government policy of diversifying both crop use and crop diversification.

Sandeep Mohapatra and co-authors studied the processing of Finger Millet (*Eleusine coracana*) known locally in Tamil Nadu as Ragi. Finger millet is nutritious and well adapted to the local growing conditions but is difficult to process, stone-grinding at home taking about an hour's work by two people to produce a kilo of flour. In contrast, a multi-millet thresher, powered by a 2-hp electric motor has a dehulling capacity of 20–80 kg per hour. Unfortunately, the machine is expensive (equivalent to USD 640) and requires an electrical supply, both factors putting it out of the range of poor people. The authors suggest that small flour mills, some of which are already in place, should be sited in poor communities and that less capital intensive technology should be used such as hand- or pedal-power, rather than relying on electrical power.

In the first of the two papers dealing with food security in Ethiopia, Aisa Manlosa and co-authors found, in the rural southwest of the country, that a mixture of food crops for subsistence in combination with cash crops are important for food security. Specifically, they found that a mixture of three food crops selected from maize, teff, sorghum, barley or wheat and two cash crops – coffee and khat, the latter being a popular stimulant, was the best combination for food security. This pathway to food security is distinct from the market-oriented route taken by Ethiopian agricultural policy and suggests a rethink may be necessary.

The location of the other other Ethiopian paper is the Debark District in the northwest of the country. Morgan Ruelle and co-authors studied human-plant relations from the point of view of food sovereignty. Following a survey of farming families they found that farmers identified 123 plants that played a role within their food system. In addition to food and its consumption the authors named 10 other uses of plants affecting food security including forage/fodder, construction, fencing and fuel wood. They conclude by advocating expansion of farmers' relations with plant diversity by promoting useful semi- and non-domesticated species and facilitating knowledge exchange among communities as a means to food sovereignty and a pathway to long-term food security.

Esther Lamidi used data from the Nigerian General Household Survey to analyze how three factors - social capital, education and time use - related to household food

insecurity. Households with children and elderly disabled persons were at a significantly higher risk of severe food insecurity. The other major influence was the time taken to access fuel for cooking. On average households spent 90 min per day collecting wood or other fuel. The author suggests that interventions aimed at overcoming poverty and hunger should target families with children and disable elderly people. They should also address the unmet need for contraception in order to limit the rate of increase of Nigeria's burgeoning population.

Stephen Devereux and co-authors investigated the performance of two graduation model programmes in Burundi and Rwanda. These programmes deliver a package of support to poor households, including cash and asset transfers, training and coaching, and access to savings facilities. They do reduce extreme poverty but evidence for their impact on Food Security is limited. To fill this gap, the authors used four measures of food security: Proportion of undernourished in the population; Prevalence of underweight in children under five years; Under-five mortality rate; and the Global hunger index. They found that Rwanda performed much better than Burundi on all four measures. One reason for this is that Burundi is in protracted crisis and spends only a small proportion of GDP on social protection.

Export taxes have increased over the last decade according to Jason Beckman and co-authors. Using a global economic model the authors showed that export taxes do not have a widespread impact on international agricultural prices, but rather that the impact is concentrated in few goods: wheat, coarse grains, and beef. They suggest that removal of export taxes would benefit regions that apply them by increasing production and exports and reducing poverty.

Helene Dillard provides an excellent and succinct report of the International Congress of Plant Pathology 2018. This had the title Plant Health in a Global Economy and took place in Boston, USA on 29th July – 3rd August 2018. A particularly useful aspect of her report is that she placed plant pathology in a broad context. One puzzling phenomenon of these

Congresses is that up to now they have occurred at only 5 year intervals. Although this is mooted to change to 4 years in the future, this seems an inordinately long interval for a subject that can move extremely rapidly and, one might add, as plant pathogens can, both naturally and with the enormous increase in air traffic. Some say that country Plant Pathology societies should fill this gap but pathogens do not recognize country boundaries and many of our important crop plants are grown globally. Plant disease is an existential threat to that most basic of human needs - food. Plant pathologist need to make their voices heard in the corridors of power. An International Congress only once every 5 years hardly cuts the mustard.

The subject matter of the two book reviews are not entirely unrelated: organic farming and sustainable food futures. Malcom Blackie found that Gregory Barton's 'Global History of Organic Farming' was not so much a history of organic farming, which was left undefined, but rather an exposition of lives of remarkable people such as Albert and Louise Howard who lived in India around the latter days of the British Empire. In the 1920s they bred wheat that was adapted to the local climate and developed an interest in soil health and composting. Joëlla van de Griend reviews the book 'Sustainable Food Futures: Multidisciplinary Solutions' edited by Jessica Duncan and Megan Bailey. According to the reviewer, the book provides many radical and "outside-the-box solutions" for problems in the food system and should interest those concerned with sustainable food futures and who are not afraid to deviate from business as usual.

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