



University of  
**Nottingham**  
Future Food

## Future Food Beacon newsletter

May 2021




Dr Wilkson Makumba, Director of Agricultural Research Services, within the Ministry of Agriculture, Irrigation, and Water Development in the Government of Malawi, (front left) welcomes the GeoNutrition team to Chitedze, including colleagues from UoN, Lilongwe University of Agriculture and Natural Resources, and Malawi's Department of Agricultural Research Services

We are delighted to announce the publication, in *Nature*, of the latest paper to emerge from the [GeoNutrition](#) project [The nutritional quality](#)

[of cereals varies geospatially in Ethiopia and Malawi.](#)

The University of Nottingham has issued this [press release](#) and Martin Broadley has written a '[Behind the Paper](#)' blog. We heartily congratulate the international research team spanning Ethiopia, Kenya, Malawi and the UK!

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**An introduction to the MakerSpace**

**TECHNOLOGY PLATFORMS VIDEO SERIES!**

The third video in our technology platforms video series showcases the work of the incredibly versatile MakerSpace. If you've a plant phenomics problem, they can probably design a solution! Our thanks as always to the talented Assoc. Prof. Tristan Dew for directing, recording and editing this video.

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Guilhem Reyt is the lead author of an excellent new paper in *Nature Communications*: [Two chemically distinct root lignin barriers control solute and water balance](#).

It has been received extremely positively and, shortly after publication, it was selected as an [Editor's Highlight](#) in *Nature Communications*!

This builds on the success of his paper in *Current Biology*, which we summarised on our [blog](#) last year.

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The incredible [Ion Explorer](#) is a [free-to-use online tool](#) allowing researchers to access and interact with the leaf and seed ionomic data of more than 1000 *Arabidopsis thaliana* accessions. Read this [open access article](#) in The Plant Journal to find out how it works.



Our amazing [Research engagement map](#) is live! Get a visual perspective on the international reach of the Future Food Beacon's transdisciplinary and interdisciplinary projects!

A plant-based company that the **Food Innovation Centre** supported in its infancy is now **celebrating securing £1.6m** through a crowdfunding appeal. *Better Nature* specialises in products made from tempeh – a fermented plant-based protein made using soybeans or other legumes, nuts, grains or seeds.

The Food Innovation Centre has been inspired by this success to publish its own **alternative proteins factsheet** for use by the food and drink sector.



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## Future Food News

Christopher Chagumaira is the lead author of a paper which explores **how best to communicate complex spatial data about micronutrients in food crops**, including to policy makers

Congratulations to Mesfin K. Desta on the publication of his paper identifying that **landscape position affects the zinc content of food plants in the Amhara region of Ethiopia**.

This month, Matt Jones has had a fascinating paper published about the range of **food plants consumed by hunter-gatherers in the Epipalaeolithic** period.

Levi Yant celebrated a publication in PNAS, with his Chinese collaborators and friends, about the properties of **the amazing loquat** and how whole genome duplication has affected it.

Sacha Mooney, Hannah Cooper and Sofie Sjogersten had a great article about **no-till farming** published in the *The Conversation*.

### From the Future Food blog

In April, we concluded Karla G. Hernandez-Aguilar's 2-part blog **reflecting** upon her trip to the Yucatan peninsula in Mexico and Belize. Together with her colleagues, Karla has created a unique, downloadable **Maya Milpa (Kool) calendar**, in Spanish and Yucatec Maya! The calendar celebrates the farmers of the Yucatan peninsula in Mexico and Belize who practice the traditional Milpa farming system. It also serves as a handy **data collection and research tool**, check it out!

We followed Karla's story with Jon Atkinson's account of **how he built the rhizotrons**, complete with amazing **time-lapse video**!

Finally, Peter Noy continued his 'Take Control of Your Career' series with sound **advice on grant writing** for early career researchers.

### Interesting articles and reports

**The restorative power of a plant-based diet** podcast discussing the **WWF report**

**Scale, seeds and sovereignty** podcast by Prof. Elena Lazos Chavero (National University of Mexico)

**Can soil inoculation accelerate carbon sequestration in forests?** - soil microbiome article

**Biochar**, a soil amendment technology to sequester greenhouse gas emissions - KTN Agrifood

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## Upcoming talks, seminars and conferences

## **MAY**

### **20 May**

IFST Sensory Science Group webinar: **Olfaction in the time of Covid-19** - 14.00

'New Roots to Understanding Roots' **3rd EPSO Plant Science Seminar** - 15.00

### **25 May**

UoN School of Biosciences **Knowledge Exchange Strategy Launch Event** - 14.00-16.00

**'Simulating growth and development of interacting plants in 3D'** by Assoc. Prof.

Jochem B. Evers - 14.00

### **27 May**

**'Towards a more resilient and sustainable food system devoid of waste'** by Dr

Ifeyinwa Kanu - 14.00

## **JUNE**

### **15-16 June**

**OFIC 2021** - Oils and Fats International Congress at Hotel Istana, Kuala Lumpur, Malaysia

### **15-17 June**

**Future Food Beacon Briefings - 10:30am to 12:30pm via MS Teams:**

**Tue 15th Jun 10:30am - 12:30pm**

**Wed 16th Jun 10:30am - 12:30pm**

**Thu 17th Jun 10:30am - 12:30pm**

### **16 June**

'A pig is not a mouse' by Professor Ramiro Alberio, Professor of Developmental Biology, Animal Sciences (UoN only via MS Teams, with apologies) - 14.00

### **21-23 June**

**Food & food systems in a time of insecurity conference** (online)

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## **New publications from Future Food**

### **Futureproofing agricultural systems**

**Polyploidy underlies co-option and diversification of biosynthetic triterpene pathways in the apple tribe** Su et al (2021)

**Plant gathering and people-environment interactions at Epipalaeolithic Kharaneh IV, Jordan** Bode et al (2021)

**Simulating land use changes, sediment yields, and pesticide use in the Upper Paraguay River Basin: Implication for conservation of the Pantanal wetland** de Oliveira Roque et al (2021)

**Mapping groundwater recharge in Africa from ground observations and implications for water security** MacDonald et al (2021)

**Maintenance of adaptive dynamics and no detectable load in a range-edge out-crossing plant population** Takou et al (2021)

**Adaptive introgression: how polyploidy reshapes gene flow landscapes** Schmickl and Yant (2021)

**The potential of resilient carbon dynamics for stabilizing crop reproductive development and productivity during heat stress** Ferguson et al (2021)

**Novelty and convergence in adaptation to whole genome duplication** Bohutinska et al (2021)

**De-novo mutation and rapid protein (co-) evolution during meiotic adaptation in *Arabidopsis arenosa*** Bohutinska et al (2021)

**The evolutionary genomics of serpentine adaptation** Konecna et al (2021)

**Help or hindrance? The evolutionary impact of whole-genome duplication on immunogenetic diversity and parasite load** Bell et al (2021)

**Plant roots sense soil compaction through restricted ethylene diffusion** Pandey et al (2021)

### **Food for health**

**The nutritional quality of cereals varies geospatially in Ethiopia and Malawi** Gashu et al (2021)

**Communicating uncertainties in spatial predictions of grain micronutrient content** Chagumaira et al (2021)

**Two chemically distinct root lignin barriers control solute and water balance** Reyt et al (2021)

**Combined innovations in public policy, the private sector and culture can drive sustainability transitions in food systems** Moberg et al (2021)

**Magnesium and calcium over accumulate in the leaves of a *schengen3* mutant of *Brassica rapa*** Alcock et al (2021)

**Influence of environmental and genetic factors on food protein quality: current knowledge and future directions** Szepe et al (2021)

**Selenium speciation and bioaccessibility in Se-fertilised crops of dietary importance in Malawi** Muleya et al (2021)

**Plant available zinc is influenced by landscape position in the Amhara region, Ethiopia** Desta et al (2021)

**A stable isotope approach to accurately determine iron and zinc bioaccessibility in cereals and legumes based on a modified INFOGEST static in vitro digestion method** Muleya et al (2021)

**Ionic analysis of spring wheat grain produced in Kazakhstan and Russia** Abugalieva et al (2021)

**Insects: a potential source of protein and other nutrients for feed and food** Hawkey et al (2021)

**Why Garden in Schools?** book - Earl and Thomson (2021)

### **Food for sustainable livelihoods**

**Extraction of protein from food waste: An overview of current status and opportunities** Kamal et al (2021)

**Role of novel protein sources in sustainably meeting future global requirements** Salter and Lopez-Viso (2021)

**Derivation and validation of a total fruit and vegetable intake prediction model to identify targets for biomarker discovery using the UK National Diet and Nutrition Survey** Owen et al (2021)

**Genomic and pedigree-based predictive ability for quality traits in tea (*Camellia sinensis* (L.) O. Kuntze)** Lubanga et al 2021

**Thermal taster status: temperature modulation of cortical responses to sweetness perception** Eldeghaidy et al (2021)

**Farmer adoption of sustainable intensification technologies in the maize systems of the Global South. A review** Jones-Garcia et al (2021)

**Building a resilient and sustainable food system in a changing world - A case for climate smart and nutrient dense crops** Mustafa et al (2021)

**To tell us your news, share conference registrations or abstract opportunities, as well as any food-related reading please email:**

**Andrew Edwards** (Ed), Acting Communications Officer for the Future Food Beacon





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