

Newsletter

www.campdenbri.co.uk



Innovation for industry

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The production, preservation, manufacturing and distribution of food and drink rely heavily on science and technology. Through 2014 we held an extensive consultation with our members about what industry needs from innovation in science and technology. The consultation spanned 'pre-farm to post-fork', so many needs were identified. Some recurring themes are worth highlighting.

Assuring product safety is seen as an imperative - through the availability of both assurance and analytical tools to ensure the delivery of safe products of the appropriate quality and enhanced value. There was also significant emphasis on 'consumer care'. This ranged from reformulation of products and provision of guidance to encourage a healthy diet and consumer well-being, through to supply chain integrity and protecting consumers from 'food fraud'.

Significant concern was raised about an emerging 'skills shortage' in the industry. In particular, the need to encourage young people and new graduates into the sector was seen as essential for maintaining a competitive industry that can rise to the challenges of providing a sustainable supply of safe, nutritious products.

These innovative priorities will be met through basic, strategic or applied pre-competitive activities or through more 'near-market' innovations.

To download a copy of 'Innovation for the food and drink supply chain' send an e-mail to auto@campdenbri.co.uk with the subject line: **send innovation 2015**

Your partner for
processing technologies

January 2015

Thank you - for telling us what you need

Through 2014 we asked you, our members, what your companies need from science and technology. The results have now been published*. As a major provider of science, technology and knowledge services that address the practical needs of industry, it is essential that we understand your needs.

We were delighted that so many of you took the opportunity to share your thoughts with us, in what is the biggest consultation of its type on industry's 'innovation needs'. With 2,400 member companies in 75 countries, we are ideally placed to gauge industry's views through discussion sessions and surveys. Members devoted their time, energy and ideas through 29 industrial meetings - involving 572 face-to-face contributions - as well as dozens of written submissions.

Although this is the seventh time we have undertaken this triennial exercise - since the first back in 1996 - the findings will help us enormously in shaping our business plans to provide you with what you need through our services, pre-competitive research, tailored technical support and knowledge management activities.

It will also enable us to work with government departments, agencies, funding bodies, standards organisations and the many other organisations with which we collaborate, to raise awareness of the innovation needs of the supply chain - from 'pre-farm to post fork'.

I'd like to thank you for your input, which has been invaluable.

Steven Walker
Director General

*See cover article and pages 4-5 for further information and details of how to get your copy.

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Latest on the website

www.campdenbri.co.uk

Drinks new product development

Blog by Geoff Taylor

www.campdenbri.co.uk/blog

Cereal and cereal product specifications

Podcast by Mervin Poole

www.campdenbri.co.uk/podcasts/cereal/product/specifications.php

Product reformulation

Podcast by Linda Everis

www.campdenbri.co.uk/podcasts.php

Small scale coffee roaster

Video

www.campdenbri.co.uk/videos/small-scale-coffee-roaster.php

Processing

Reducing energy costs

- new project

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One of the new 2015 research projects that you voted for will be looking at process optimisation to reduce cost and energy consumption.

Better preservation of the nutritional and sensory properties of foods during heat processing is very important for quality and consumer acceptance of the products. It can also have beneficial effects for food product development. For example, antioxidants are often added to fat-containing foods to delay or slow down the development of rancidity. Greater retention of naturally present or added antioxidants through optimal thermal processing can also improve product shelf life. Optimised thermal processes could also reduce cost and energy consumption. Both CTemp and Time-Temperature Integrator techniques can be developed as quality sensors that can be used to optimise the thermal processes. This project - *Quality validation for heat processed foods: improving product quality, reducing process energy and cost* - will provide a systematic study of process validation and optimisation to reduce cost and energy consumption, improve product quality and ensure safety.

UV-C processing capability acquired

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We have recently invested in an ultraviolet light tunnel system for research and contract services. UV light treatment is a non-thermal, non-chemical technology to inactivate microorganisms, and has been used to disinfect water/air systems and for surface decontamination (packaging and work surfaces) for many years. In comparison, its application to process foods, which is an area that we will be exploring, is a relatively new and challenging area.

Our system consists of 16 x 95W high output UV-C emitters, where the product can be treated from both above and below.

Although all UV wavelengths cause some photochemical effects, wavelengths in the UV-C range (100-280nm) are particularly damaging to cells because they are absorbed by proteins, RNA, and DNA. Gemicidal efficiency reaches a peak at about 254 nm. Treatment with ultraviolet energy offers several advantages to food processors as it does not leave a residue, and does not require extensive safety equipment. It is also easy to use and is relatively low on equipment, energy and maintenance costs.



Heat process validation: using surrogates

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www.campdenbri.co.uk/research/heat-process-validation.php

When developing, optimizing and validating a process aimed at eliminating microbial contamination of a food product, there comes a point at which the actual factory process must be evaluated, to provide verification that the microorganism of concern is sufficiently reduced in the product. Introduction of pathogens or spoilage organisms into a commercial processing environment would pose an unacceptable risk to food safety/spoilage. Time-temperature integrators can be used instead, as can surrogate organisms. These are harmless organisms with similar resistance properties to the microorganism of concern. This project is generating data to support the use of definitive surrogate organisms, investigating their suitability across different food groups and process types.

A range of surrogates are being evaluated for their suitability to mimic *Salmonella*, *Listeria monocytogenes*, *Bacillus cereus* and *Byssochlamys* in a range of products. These all have different growth and heat resistance properties, and are a potential problem with different food types. Initial studies have demonstrated that the surrogate must be matched not only with the pathogen, but also with the food matrix - for example, a surrogate for *Salmonella* in a chilled, short shelf-life food that is preserved with wet heat may not be suitable for seeds treated by roasting.



The largest
consultation of its kind -
with industry, for industry

Industry needs that will drive innovation

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www.campdenbri.co.uk/industry-needs.php

Scope

The consultation involved the whole supply chain - from primary production through to retail and food service - as well as companies supplying into this chain (e.g. plant breeders, equipment and packaging suppliers).

Innovation themes

The needs are grouped into themes which reflect this 'whole supply chain' approach - from primary production through manufacturing and supply of the product and packaging, to food, drink and the consumer.

Drivers

During the consultation there was considerable discussion about the main 'drivers' creating the needs, namely:

- Safety
- Quality and value
- Nutrition, health and well-being
- Resilience and efficiency
- Environmental sustainability
- Skills and knowledge

Considered together, the drivers and the themes form a matrix against which the needs have been mapped, so that they can be addressed.

Innovation for the food and drink supply chain

Scientific and
technical needs
2015-2017

Needs identified

Many innovation needs were identified. Here are some examples:

- Assuring product safety through assurance and analytical tools
- Encouraging consumer well-being through a healthy diet
- Protecting consumers and industry from food fraud
- Encouraging sustainable practices such as better crop protection and reduced use of resources
- Tackling industry's 'skills shortage'

- Research in other organisations and individual companies - including strategic collaborations with and between wide-ranging, inter-disciplinary and internationally dispersed groups that serve the food and drink supply chain globally
- Raising awareness of industry needs amongst government departments, agencies, funding bodies, standards organisations and other third parties - to help stimulate new applications of science and technology

To download a copy of 'Innovation for the food and drink supply chain' visit www.campdenbri.co.uk/industry-needs.php or send an e-mail to auto@campdenbri.co.uk with the subject line: **send innovation 2015**

Addressing the innovation priorities

The needs will be met through the practical application of science, technology and knowledge services, including basic, strategic and applied pre-competitive activities and through more 'near-market' innovations. Examples of activities will include:

- The Campden BRI member funded research programme
- Scientific, technical and knowledge based services (e.g. courses, seminars, publications and databases) from Campden BRI

2,400 companies in 75 countries surveyed

29 industrial meetings

572 face to face contributions

61 written submissions

Strategic themes and the drivers for industry needs

	Primary production, raw materials and ingredients	Manufacturing and supply	Product and packaging	Food, drink and the consumer
Safety	Minimising contamination in production	Managing safety hazards and risks in processing, distribution and sale	Delivering products that are safe throughout shelf-life	Protecting the consumer through appropriate guidance
Quality and value	Ensuring suitability for purpose at proportionate cost	Maintaining and enhancing quality through effective process technology	Maintaining product quality throughout shelf-life	Exceeding consumer expectations
Nutrition, health and well-being	Enhancing nutritional potential	Preserving and enhancing nutritional value in processing, distribution and sale	Delivering nutritious products that meet dietary needs	Responding to nutritional requirements and dietary habits
Resilience and efficiency	Securing supply and assured integrity at proportionate cost	Assuring resilience and efficiency throughout manufacturing, distribution and sale	Delivering safe, authentic and compliant products and packaging	Building consumer trust in the supply chain
Environmental sustainability	Producing 'more with less'	Enabling efficient use of energy and materials with minimal environmental impact	Designing products and packaging to minimise waste	Minimising waste and environmental impact
Skills and knowledge	Developing and maintaining skills, knowledge and 'tools' in production	Developing and maintaining skills, knowledge and 'tools' in manufacture, retail and food service	Anticipating and responding to regulatory and technical changes and their impacts on product and packaging	Engaging consumers in production, process, product and packaging knowledge

This document maps out the 'principal areas of need' organised in line with this matrix.



Training events

February 2015

- 2-6 HACCP - advanced (level 4)
- 4 Threat assessment critical control point (TACCP)
- 10-11 Understanding microbiology - foundation
- 12 BRC Standard Issue 7 briefing session
- 17-18 HACCP for feed - intermediate (Level 3)
- 23-27 FSSC 22000 Auditor/Lead Auditor course
- 23-26 Sensory evaluation workshop
- 24-25 Food and drink labelling
- 24 Root cause analysis

A full list of 2015 scheduled courses is available on our website www.campdenbri.co.uk/training.php or by requesting a booklet from training@campdenbri.co.uk +44(0)1386 842104

SOPHY workshop

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SOPHY is an EU-funded project that has developed a web-based software tool for prediction of product safety, quality, and shelf life of ready-to-eat products. We are running workshops on:

- 14 January at Birmingham University
- 20 January in Arnhem, Netherlands
- 26 January at our offices in Budapest

which will update delegates on the progress of the project, give a practical demonstration of the software features and allow users to test and provide feedback on the software. The software is designed to help optimise raw material selection, product formulation and processing steps virtually, and estimate the effect of individual production steps on safety and shelf life while considering quality effects.

Food production machinery: seminar

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Equipment suppliers may not always fully appreciate the operational challenges facing food manufacturers, such as quality management systems, HACCP, hygiene procedures and retailer requirements. Similarly, food manufacturers may not always realise the constraints faced by suppliers, e.g. cost pressures, operator safety concerns (which may conflict with food hygiene requirements) and materials of construction constraints. *Food production machinery: food safety requirements, challenges and applications* on 5 March, will bridge the gap between the two, by establishing a common understanding of the issues faced by both sectors. This will be achieved by presentations and interactive discussions around three themes:

- Legislation, compliance and quality management systems
- Fundamentals of hygienic design and the need for clear specification of design
- Case studies of how to make it work in practice.

Food contact materials: seminar

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www.campdenbri.co.uk/food-contact-seminar.php

Legislation in European countries relating to materials in contact with food is regularly evolving. This seminar, to be held on 24 March at Excel, Docklands, coincides with Pro2Pac, and will focus on the challenges associated with the current legislation and future changes and how they will affect industry. Speakers with specialist expertise will advise on how you can ensure that you meet the new requirements. Key areas to be covered include:

- Challenges with the changes to the legislation
- Adhesives, printing inks and coatings for food contact
- Machinery in contact with food
- Declarations of compliance
- How the paper and board industry can ensure compliance

www.campdenbri.co.uk/training.php



Visit Member Zone

www.campdenbri.co.uk/memberzone.php



to access privileged member information and services

Bakery personality of the year

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Charles Speirs was recently among 10 people shortlisted by Bakery and Snacks Magazine for their Personality of the Year award for 2014. His dedication and enthusiasm to building and strengthening the science behind baking, as well as his continued forward-thinking on trends and issues set to impact the sector was acknowledged by the magazine's editorial panel as refreshing and credible.

When asked about his proudest achievement for the year, Charles commented:

"Although many of my activities involve confidential client work which I clearly cannot share, one piece of news I can share is that my pioneering work on fat reduction using a novel alginate gel-in-oil emulsion system, which has been supported by the Campden BRI membership, is attracting increasing interest from the bakery sector."

Roy Betts on the Register of Specialists

The Food Standards Agency has added Dr. Roy Betts, Head of Microbiology to its Register of Specialists. This will involve the Agency calling on Roy on an ad hoc basis in the appraisal of project proposals and final reports, as well as in the framing of research questions and for other expert advice.

Research programme 2015

Our 2015 Research Programme has just been published. This lists all research and development projects currently being undertaken or already completed, other than small service contracts and confidential consortia or company-funded work. Each project has a concise description together with information on funding source, collaborators and project manager contact details. An index and project timeline are included. Project managers will be pleased to provide members with further information about projects.

To receive an electronic copy of this document, send an e-mail to auto@campdenbri.co.uk with the subject line: **send RP2015**

Ozone for whole-room disinfection

In partnership with system manufacturers and users, we have been studying the possible use of whole room disinfection to control pathogens and potential spoilage organisms in the food production environment (factories and process halls) for over 20 years. In this time there has been an increase in the demand for and expectation of higher standards in the control of microorganisms within the food production environment. Coupled with the identification of environmentally persistent strains of pathogens, this has led to a significant interest in the use of whole room disinfection techniques to supplement routine cleaning and disinfection.

The use of ozone in whole room disinfection (RD380) summarises current knowledge and work done at Campden BRI and elsewhere in the past few years.

For a free copy, send an e-mail to auto@campdenbri.co.uk with the subject line: **send RD380**



Welcome to new members

Campden BRI is delighted to welcome the following new members who joined recently:

Bibby Distribution Ltd - distributor of food ingredients

Crosta & Mollica Ltd - importer of Italian baked products

DHL - Supply Chain - Manufacturing Services - copacker and biscuit manufacturer

Elektron Technology plc - developer of systems to support food safety compliance

Hepworth & Company Brewers Ltd - brewery

Inside Organics Ltd - manufacturer of raw and organic food products

Ministry of Cake Ltd - manufacturer of cakes and puddings

Planet Coconut Ltd - manufacturer of dairy free yoghurt and ice cream

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Please notify the Membership Department of any name or address changes to allow us to keep our records up to date.

Social media



Facebook - find out more about our history and our lighter side www.facebook.com/campdenbripage

Twitter - regular tweets to keep up to date with our latest news and activities <https://twitter.com/campdenbri>

YouTube - a range of videos providing an insight into the science and technology underpinning food and drink production www.youtube.com/campdenbri

LinkedIn - company updates providing our latest news www.linkedin.com/company/campden-bri

iTunes - subscribe to our podcasts

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