

# Newsletter

May 2011



## Making sure your meat looks good

State-of-the-art digital colour imaging is helping our clients to ensure that their meat products are attractive and appealing to the consumer. The DigiEye system captures consistent images with precision, providing a faithful reproduction of the original product appearance.

Visual appearance is very important in the quality assessment of meat and poultry products. An unacceptable colour or the presence of specific defects may lead to rejection by the consumer, resulting in loss of revenue and an increase in waste.

As an example of its usefulness, a workshop was set up at Campden BRI between a retailer and all of their poultry suppliers. Each product was assessed in turn to establish tolerance limits of acceptable and non-acceptable visual quality characteristics, which both the retailers and their suppliers agreed to. These images were captured by the DigiEye colour imaging system and a complete set of customised specifications was prepared for the suppliers to work to.



## Measurement of colour

As well as the ability to accurately and reproducibly capture images, the DigiEye can also be used to describe the variations in colour of a product. This means, for example, that the visual appearance of streaks of fat in lean meat, or of colour change from one part of the meat piece to another can be precisely analysed.

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See inside for further information on how we use digital imaging systems to help our clients.



Picture this...

## Image analysis identifies product quality

The ability to accurately picture and describe the colour, composition or structure of a food product provides the food manufacturer with a valuable tool to improve quality - as our front page article demonstrates. But meat is not the only product that can benefit in this way. From consistent and accurate colour measurements of products such as fruit and vegetables, to detailed descriptions of the crumb structure of bread and cakes, we have a range of state-of-the-art equipment to do the job. Image analysis specialist Martin Whitworth explains:

*"As well as DigiEye technology we can perform non-destructive imaging of internal product structure using an X-ray CT scanner. We also do quantitative analysis of cellular product structure using the C-Cell instrument, which we helped develop."*

*More recently, use of hyperspectral NIR imaging has allowed the chemical composition of products to be visualised and quantified. It clearly shows areas where the composition is different. This makes it very useful for investigating the uptake of fat in fried products, such as doughnuts or chips, or to monitor moisture migration in bakery products and help understand how they become stale over storage life."*

A short video clip demonstrating some of these imaging techniques can be viewed at

<http://www.campden.co.uk/videos/image-analysis.htm>

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## Campden BRI Day Thursday 9 June

The displays will be centred around the themes: Analysis and testing, Operational support, Research and innovation, and Knowledge management.

You can also hear **Miles Templeman**, Director-General of the Institute of Directors, addressing the theme of '**Current challenges for business**' in the 33rd Annual Campden Lecture. Registration is under way.

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## David Arthey

It is with great sadness that we learnt of the death of David Arthey on April 7th, after a long battle against illness. To many members, David was the 'face of Campden' for over four decades. He joined the then Canning and Quick Freezing Fruit and Vegetable Research Association in January 1962 as a Horticultural Officer, and undertook a series of significant roles - in particular related to the development of our agricultural services, and the research programme in general - and for many years in the 1980s and 1990s he was Deputy Director.

Even after he retired in January 1996, he continued to travel and seek new business for the company. In addition he coordinated the work of the Friends of Campden and remained one of our greatest supporters.



## Why do consumers throw bread and cakes away?

Of the 8.3 million tonnes of food and drink wasted in the UK each year, nearly 800,000 tonnes is bakery waste. Research that we carried out for WRAP, the Waste & Resources Action Programme, has generated insights and recommendations that can help consumers to reduce bakery waste. Peter Burgess explains:

*"This project comprised two elements. Firstly, extensive consumer research was undertaken to investigate consumers' attitudes, motivations and behaviour around buying, storing, using and throwing away bakery items. Subsequently, a trained panel assessment, combined with a consumer product test, sought to identify whether the sensory properties of sliced bread over its shelf-life have a relationship with respondents' bread disposal patterns, and reasons for throwing bread away."*

[www.campden.co.uk](http://www.campden.co.uk)

## Clare's tips

Clare Brett, our Membership Development Officer, will be passing on tips on how you can get the best out of your membership



This month the topic is **Networking**

There are many opportunities for full members to network, the most obvious being participation in one or more of our 12 **Technical Panels**, which consist of groups of members interested in particular topics or disciplines. Each meeting usually includes discussions of topical industrial issues, and updates on current legislative issues and member-funded research projects, as well as an open forum for debate.

In addition, our extensive **Conference and event programme** provides the opportunity to mingle with other members, as does Campden BRI day on 9 June.

*If you have any queries about joining a Panel please feel free to contact me:*

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*The findings showed that there is an opportunity to re-emphasise to consumers the importance of correct storage for bread (to ensure that it stays at its freshest for longer) and challenge preconceived notions of a three to four day shelf-life".*

The report can be accessed at <http://bit.ly/hmuwx9>.

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## Vote for official communication electronically

At the AGM of members on Campden BRI Day on 9th June, we will be seeking members' consent to send or supply documents and information, including the annual accounts of the Company, to them in electronic form and via a website. This is now possible following a change in the law. Increased use of electronic communications will deliver savings in terms of administration, printing and postage costs, as well as speeding up the provision of information to our members.

The official paperwork regarding this proposed change will accompany the notice to members of the annual general meeting, and should be returned in the envelope provided. If you have any questions about the proposal, please contact our Director of Finance:

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## Research update

### Expanding our scientific knowledge

The research base funded by members is the cornerstone of much of the knowledge and expertise that you call upon to solve problems, or to help you in your product development. The research we carry out is both varied and extensive. Some recent research reports demonstrate the broad scope of our work:

#### Challenges of producing low-salt bread (RD304)

Replacement of sodium chloride with potassium chloride on an equimolar basis appears to result in bread with similar technological properties. However, total replacement of sodium chloride with potassium chloride is not possible for safety and organoleptic reasons. Salt influences bread quality through its effects on protein solubility and osmotic pressure. The effects on dough rheology have been extensively reported, and how to use this information to control bread quality is an area of active research.

#### Evaluation of lipase in sponge cake manufacture (RD307)

Selected lipases were shown to generate surface active materials in model flour and whole egg systems, and also to affect batter properties and the volume of the cakes produced. In particular it was demonstrated that lipase inclusion benefits the textural properties of the cakes during storage and hence has the potential to extend shelf life.

#### Food surface decontamination of ready-to-eat produce (RD308)

Although pulsed light caused a reduction in microbial load on lettuce, beansprouts and mung bean seeds, thermal imaging showed that samples of lettuce and mung bean seeds underwent a significant heating effect following treatment. Subsequent visual assessment indicated that tissue damage had occurred and shelf-life was reduced.

#### Advances in eNose technology (RD309)

This review concluded that eNose technology remains a technique which detects a narrow spectrum of odour compounds, or else one that requires considerable effort to optimise for each application.

Members can access receive free electronic copies of these reports by sending an e-mail to [auto@campden.co.uk](mailto:auto@campden.co.uk) with the subject line: **send RDxxx** (where xxx is the number of the report).



## Working together to improve food safety

Campden BRI and BRC Global Standards are working together on a number of initiatives. These will exploit the food technical expertise of Campden BRI to enhance the technical competence of auditors and certificated sites to improve food safety in the food and drink chain.

The partnership was announced at the recent BRC Global Standards Conference in London, which had a record number of delegates from around the world.

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## How risky are your raw materials?

Most food raw materials have potential hazards associated with them - be they chemical, microbiological or physical. But some hazards are a greater risk to the final product than others. How do food manufacturers and processors objectively decide which hazards need specific attention? To help answer this question, we have published new guidance on raw material risk assessment. *Risk assessment and management of raw materials* (Guideline 65) provides specific guidance on the application of risk assessment techniques to identify, evaluate and control hazards associated with raw materials in a food, drink or feed manufacturing environment. The guidance will be of most use to companies looking to develop or update a procedure for raw material assessment, giving them more confidence in the food safety management procedures they have in place.

The guidance is relevant to both large and small businesses, the approach for each being the same, although the level of complexity, associated procedures and documentation would be significantly different.

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## Welcome... to new members

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

**Alchemy Systems Training Ltd** - a training and educational technology company

**Chlorine Dioxide Solutions Ltd** - consultants and suppliers of chlorine dioxide technology for food processing

**Camposol SA** - fruit and vegetable grower and processor

**Colpac Ltd** - designer and manufacturer of folding carton food packaging

**Joseph Robertson Ltd** - manufacturer of chilled and frozen seafood products

**PANalytical Ltd** - supplier of analytical instrumentation and software

**RAPS UK Ltd** - manufacturer of seasonings, sauces, marinades, functional ingredients, encapsulated products and extracts

**Rhodes Food Group** - producers of ready meals, dairy products and fresh pasta

**Vernon's Foods** - producer and importer of food products

**Wrights Pies Ltd** - manufacturer of baked goods, pies and confectionery

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Please notify the Membership Department of any name or address changes with respect to our mailing list.

