BAKING INDUSTRY RESEARCH TRUST

Bulletin

Autumn edition

In this edition of the bulletin, I present the results of the inaugural Young Baker of the Year competition recently held.

I have also given an update on one of our key research projects – Future Energy Efficiency – and highlight a new interactive from the Lifestyle Foods group that you and children you know may be interested in.

Annette

Ricky (left) is presented with his award by Laurie Powell, President of the NZAB

NZAB "Young Bread Baker of the Year" Award:

The first winner of this new award, presented by the New Zealand Association of Bakers (NZAB) for the best newly qualified bread baker in New Zealand, is Ricky Ashton from the Goodman Fielder Technical team.

Ricky will be representing the New Zealand Industry at the L.A. Judge competition held in Australia later this year and has identified that as part of $10,000 research grant prize he would like to visit the Las Vegas Baking exhibition.

Ricky was born in Whakatane 21 years ago and went to Trident High School there for 4 years.

He applied for a job at Quality Bakers Rotorua for the Easter period 5 years ago and soon became a full time member of the smallgoods shift. He quickly learnt all the jobs in this area and began his apprenticeship in 2004. He has recently become a member of the GF Technical team under the watchful guidance of Joe Jarkiewicz.

Ricky won the Stage 1 Quality Bakers Apprentice of the Year for 2005 and the overall Apprentice of the Year in 2006 before entering this year's NZAB "Young Baker of the Year" award.

Ricky has started to plan how he will use the research grant of $10,000 he gets from winning NZAB "Young Baker of the Year". The majority of the money will be used to visit the IBA expo in Florida held in October 2007. He sees this as an ideal opportunity to see the latest technology, equipment, ingredients and processes in the baking industry all in one area. He is also planning to visit some plants on this trip to see how large manufacturers operate in the USA.

Outside of baking Ricky likes to keep fit and is a keen rugby league player, playing for his local Howick Hornets club.

Research update – FEE

In the baking optimisation part of this project, three focus areas were identified: starch gelatinisation, the heat pipe effect in dough, and oven efficiency. Outlined below is some of thinking behind two of these areas (the third will be covered in a future bulletin).

Degree of Starch Gelatinisation

In order to determine the minimum amount of energy needed to make a loaf of bread, we must first establish the 'minimum' quality of the bread which needs to be achieved for consumer acceptance. If, as we suspect, starch gelatinisation is the main factor controlling bread quality and it could be reduced, then the baking time would be reduced significantly. Calculations with a simple first order kinetics model show that if the degree of gelatinisation is reduced by 5% then the gelatinisation time can be reduced by 15%.

Accordingly in this part of the project, the researchers are working to identify the minimum degree of starch gelatinisation in the crumb that needs to be achieved for consumer acceptance.

They will then move onto investigate the effects of baking conditions (temperature, time, moisture content of dough) on the minimum degree and the rate of starch gelatinisation.

Oven efficiency

To enable improvements on existing baking systems we need to understand the existing ovens, how they operate, and what their limitations are. It has been claimed that bakery ovens are inefficient. "Due to the poor furnace design, inefficient operation management, and the absence of heat recovery only 25–30% of the input energy can be found in the final product".

As a first step in this part of the project, a questionnaire survey of users of industrial bread ovens is in progress. The aim of the survey is to determine the existing operating parameters of the ovens so that an estimate of their efficiency can be made, and an estimate of their mode of heat transfer to the bread (convection, radiation, condensation). This information will then be used as a basis for modelling of alternative heating strategies.

If it can be demonstrated that different heating strategies can produce energy savings then application of these strategies to selected industrial ovens will be investigated. This will likely involve more detailed measurements of oven performance under these altered conditions, using data loggers to measure temperature, heat flux (both radiant and convective), air velocity, and water vapour in the oven.

Biotechnology Learning Hub

During the past few months, the team working on the Lifestyle Foods project has collaborated with staff from Waikato University on a website aimed at promoting science to New Zealand schoolchildren.

I'm pleased to let you know that the 'Future Foods' focus story is now live on the NZ Biotechnology Learning Hub and that you, as well as New Zealand's schoolchildren, can use this site to find out more about some of the science being funded by the Baking Industry Research Trust.

The link to view is **www.biotechlearn.org.nz/what_is_biotech/agriculture/focus_stories/future_foods**

The focus story includes an outline of the Lifestyle Foods research programme, with video clips, people profiles, and teaching resources (unit plans). An interactive is also included that shows how the "e mark", a front-of-pack labelling system, can be used to make food choices that match lifestyles to eating needs.

The Biotech Hub team is sure there will be plenty of interest from schools, and the Biotech Hub team will be promoting the focus story at teacher conferences and in the biotech and education sector media.

As we move into the winter season, when people begin to concentrate on indoor activities, can I remind you that research grants are simple to obtain once you have a good idea, and I would encourage you to discuss these with me further.

Next time I will look to cover some of the key food trends emerging internationally, as well as the results of the research grant on healthy eating conducted by the Christchurch Polytechnic team.

Annette Campbell
Chair
BAKING INDUSTRY RESEARCH TRUST
225 Mt Pleasant Rd, Mt Pleasant, Christchurch, New Zealand
Tel (03) 384 3639
Fax (03) 384 3461
Mob 021 653 056
Email annette.campbell@xtra.co.nz

Marcia Dunnett
Secretary
BAKING INDUSTRY RESEARCH TRUST
Level 6, Lumley House, 3-11 Hunter St, P O Box 1925, Wellington, New Zealand
Tel (04) 496 6555
Fax (04) 496 6550
Mob 021 714 560
Email mdunnett@businessnz.org.nz