



BAKING INDUSTRY
RESEARCH TRUST



Bulletin

Autumn issue, May 2010

The recent Young Baker of the year competition brought home for both me and my fellow judges just how fortunate we are to work in such a dynamic industry where there is always something happening. Of particular interest to us was the presentations made on the changes associated with the MDD process in New Zealand over the last 50 years. All of the judges had been heavily involved in a number of these changes and it was fantastic to see the lengths the presenters had gone to capture relevant information. What also came out was that most of us, if not all, have been very poor at writing down what we have been involved in and if we are not careful a lot of information "in people's heads" will be lost to the Industry over the next few years as people retire. To address this issue the Trust has commissioned a team to document these changes and I hope in years to come this will serve as a valuable reference document for our Industry. In the meantime, I would encourage people to document changes they have made in their businesses so future generations can marvel at just how innovative NZ Bakers have been.



Annette

New Zealand's Young Baker of the Year 2010

The NZ Young Baker of the Year competition is run by the New Zealand Association of Bakers and is open to all bakers in New Zealand that have completed their qualification within the past 2 years. Participants are tested on their practical baking skills as well as completing a written exam, research, a presentation and an interview over the course of one day. The judges' panel is made up of people from within the baking industry.

This year's winner was Adam McLean from Quality Bakers Auckland.

Adam's career in baking started when he applied for a job at Foodtown in 1997 and was subsequently assigned to the baking department. In 2009 Adam completed his National Certificate in Baking (Plant Baking) (Level 4) Bread. He enjoys baking as he likes coming up with different ideas for bakery products.

Adam demonstrated an ability to exceed in the areas of practical baking and theoretical knowledge of baking technology, however it was his ability to excel under time pressure which saw him win the competition. He also presented research into key processes and law changes that have occurred in the NZ baking industry over the last 50 years and their significance to the industry.

The prize for winning was a \$10,000 research grant which Adam will spend attending a baking expo in Las Vegas in September.



Sensory Study

A sensory and consumer analysis of functional and commercial white breads was recently completed at Otago University. Potentially, the model used is able to indicate whether consumers are likely to pick up a "change in freshness" when a new ingredient is added. As the model uses a white bread to test against, this difference may not be detectable in a more flavoured loaf, but would act as a flag for any developer. Further, if the modified bread possessed a specific off-flavour (not encountered in this study), this would be detected.

The study showed that iodine and folate have no effect on the sensory profile of white breads at the mandatory fortification levels. This is an encouraging result, given the mandatory requirement for use of iodised salt and the on-going folic acid debate.



Future energy efficiency for the baking industry.

The Future Energy Efficiency (FEE) project aimed to investigate the role of ingredients, bread-making processes, and equipment in energy usage patterns in bread bakeries and identify ways to manipulate these factors to achieve energy savings. Options investigated included using low work input wheat cultivars, different means of developing doughs and altered baking conditions. After initial investigations and consultation with the industry it was decided to concentrate on the baking process as this is the most energy intensive part of the bread-making process.

The work was broken down into the following projects:

- survey of energy usage in 5 bakeries using a range of oven types
- laboratory investigation of the effect of baking time and temperature on consumer acceptance of bread quality
- investigation into the effect of different baking conditions in an industrial oven on gas usage
- analysis of the effect of altered industrial baking conditions on consumer acceptance of bread quality.

Lessons learned from the research included the following:

1. Ingredients are more costly than energy inputs. The energy costs for baking at the present price of gas are small relative to other costs – \$5/GJ or 0.25 c/MJ (Ministry of Economic Development), which equates to 0.7–0.21 c/kg dough from the least to most efficient oven surveyed. This cost is low compared to ingredient cost, which are closer to 50 c per loaf. For comparison, an increase in water addition of 1% would save 0.3 c/kg dough.
2. Difficulty in slicing less-baked bread may reduce this option for reducing energy usage. This work suggests that the inability to slice bread without damage will be the major limitation to reducing the bake temperature or duration and hence energy saving. Some effort should be put into investigating the factors that control slicing quality, and developing techniques to enable damage free slicing of less baked bread. Physically altering the slicing machine is outside the scope of this work, but efforts should be directed at recipe and processing changes to make slicing easier.
3. Automated data collection systems are cheap and would guide widespread efficiency gains. Accurately measuring the effect of changes on bakery energy use and, in turn, their impacts on product quality, is only possible using automated data collection systems. The provision of these systems is quite variable between baking plants. This is an area where major advances could be made for little extra expenditure. Not only would this enable more accurate measurement of energy use, it should also allow better overall control of the plant.
4. Details of how heat transfer in the ovens is meant to operate would be very helpful. This would enable measurements to be better interpreted and further improvements in heat distribution to produce a more even or more energy efficient bake to be identified.
5. Reducing the variability in baking conditions might create more immediate savings for some plants. For example, at Couplands Bakeries the over baking of the loaves at the edges of the oven (2 out of every 15 loaves) means the average loaf weight needs to be approximately 10 g heavier to avoid any underweight and over baked bread from being produced. Reducing this variation would produce immediate savings. For a typical bakery producing 16 million loaves per year this would produce an extra 200,000 loaves per year.



Health and Wellness trends in the global food industry

(Reference: *New Nutrition Business*)

- Digestive health
- “Feel the benefit”
- Weight management
- Energy
- Naturally healthy
- Fruit: the future of functional foods
- Kids’ nutrition
- Snacking
- Target the loyal niches
- Packaging and premiumisation



Folic Acid & Iodised salt – an update

As you are aware the Industry had been working towards the mandatory fortification of breads (except for organic) with iodised salt and folic acid from September 2009.

By now all the breads produced in our bakeries that contain salt should contain iodised salt and all packaging should be updated to reflect this change.

In contrast, the Government has deferred the mandatory implementation of folic acid for 3 years pending the Industry’s voluntary approach. What this means is that we have the opportunity to voluntarily fortify breads and work with educators sufficiently so the Government will no longer think mandatory fortification is required.

The leading bakeries in New Zealand are now focusing on what they can do to minimize the risk of mandatory fortification in the future and all have a number of breads with folic acid added available for consumers. After guidance and consultation with the New Zealand Food Safety Authority these breads have been fortified at a level of 200ug/100g of bread, slightly higher than the mandatory levels.

Choice has been a key factor in the fortification approach and companies have provided their consumers with the ability to have or not have folic acid in their breads depending on their needs.

Over the next couple of years members of the Industry will be working with the NZSFA to monitor the impact of voluntary fortification in NZ versus the mandatory approach in Australia. It will be interesting to see the results as they become available and we will endeavor to keep you all up with issue as it develops.