

# WHOLE GRAINS AND SPECIALTY FLOURS IN ARTISAN BAKING



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Skills Victoria/ISS Institute TAFE Fellowship

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# Executive Summary

Scott Megee, Culinary and Bakery Instructor at Holmesglen Institute, travelled to the USA and Europe in order to observe and gain skills and techniques in artisan bakery utilising whole grains and specialty flours. The specific aims of the Fellowship were for Megee to better understand:

- The science and techniques used in whole grain and specialty flours, in pre-ferments and complex artisan breads
- The physical and chemical characteristics of specialty flours such as buckwheat and semolina
- The science and techniques used for high hydration doughs, high ash contents and whole grain flours, as well as the full spectrum of 'difficult' flours such as rye and spelt
- The chemical composition and usage of flour for manufacture
- The efficacy of natural concentrates, flour additives, dough conditioners and the utilisation of retarding techniques in creating artisan breads.

According to an Australian baking industry profile (Department of Agriculture, Forestry and Fisheries Report 2003), there is a move away from traditional apprenticeships, toward more customised in-house training by the large franchisers. Technological developments in ingredients, premix formulations and in automation, have fostered a decrease in the industry skills base. With the Australian bread sector having been in a state of change due to governmental policy and a growing public interest in food and nutrition, the industry has seen the rise of a small but growing Australian artisan-baking sector.

Agri-food Australia cited a shortage of master artisan bakers across the industry (Agri-food Skills Australia Progress Report – June 2007). This gives rise to the dual problems of insufficiently skilled artisan bakers to fulfil consumer demand, and longer term even fewer skilled master craftsmen trainers of artisan bakers. Viewed in combination with the fact that the baking industry is now identified on the National Skills Shortage list (July 2007), there is considerable scope for improving skills and education across the baking sector.

Megee's Fellowship specifically focused upon five main areas of skills deficiencies in the Australian Baking Industry:

- The use of whole grains and specialty flours in artisan bakery, with a particular emphasis on whole grain and specialty flour in high hydration doughs
- The use of sour-culture in sweet breads and flourless breads, including the manufacturing parameters of sugar content, culture percentage and the dough tolerance in mixing and proving
- The use of pre-ferments in advanced artisan bread, with a focus on determining optimum preferment percentage and the techniques for using high-ash flours, sprouted grains and whole grain starters
- The use of retarding techniques in artisan baking
- The use of bread concentrates and dough conditioners in artisan baking.

Megee attended two courses at the San Francisco Baking Institute (SFBI), a globally renowned centre for bakery education in both traditional and modern artisan bread techniques.

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The opportunity to study under Didier Rosada ('Artisan III – Advanced Artisan Bread' workshop) and Thorsten Philippi ('German Breads' workshop) ensured that Megee gained a thorough understanding of the more scientific processes involved, with reference to both the physical characteristics of the dough and how manipulating the underlying chemical reactions can have a dramatic effect upon the final loaf, its storage and eating qualities.

The SFBI component of the Fellowship brought a greater knowledge of the Raymond Calvel method of artisan bread manufacturing, as well as the practical, technical and theoretical applications of the fundamental rheological functions and effects of the ingredients used within bread production. Although not containing a great deal of the theory and history which underpins traditional German baking, the German Breads workshop ensured that Megee developed sound 'hands-on' experience in the suitability of whole grains, minimally processed grains and specialty flours. The health implications of these breads align well with the Australian Government's 'Guide to Healthy Eating' policy, which encourages Australians to have a larger percentage of whole grain and cereals in their diets. Combining this imperative with the public's increasing desire and appreciation of specialty breads, the knowledge that Megee acquired from the SFBI will enable bakers to be better educated in producing more unique and region-specific breads, vital to enriching both the baker's expertise and the public's palate.

The Fellowship also allowed Megee to travel to Belgium for an investigation into enzyme technology and the use of bread improvers at the Puratos Innovation Center (PIC). Considered by many to be the market leaders in enzyme technology; PIC is at the forefront of an enzyme technological revolution set to influence the international baking industry. Though an advocate of traditional methods, Megee's experiences and observations at PIC also enriched his understanding of the baking industry. The Fellow recognises that advances in enzyme technology will have a dramatic effect upon the production of artisan breads, in both small and large-scale commercial ventures. The Australian Baking Industry can only benefit from the exposure and dissemination of these procedures and techniques.

Megee can see the outcomes of the Fellowship having many practical applications in the training and educational environment. Information gained has been disseminated through the TAFE system, in ongoing professional development and in designing higher qualification courses. Megee can also foresee the skills acquired having application in creating connections with the hospitality industry, particularly the restaurant and café sector.

The Fellow recommends that the review of future training packages must have greater emphasis on increasing the skill level in the industry, without lowering the standards needed to achieve a Certificate III. Megee's Fellowship experience reinforced the need for greater regulation on what types of product can be called 'artisan breads' and outlined that the developments in enzyme technologies will greatly benefit the Australian Baking Industry. Greater collaboration and communication between industry training providers would have the obvious impact of improved and standardised methods of delivery, resulting in a clearer career path and increased expertise for Australian bakers, from early apprenticeship through to master craftsman.

The ISS Institute also has a role to play in encouraging future research into gluten-free breads, artisan pastries and an examination of breads from an Asian and Eastern European origin.