

MOULD RIPENED CHEESE



Kylie Smyth

ISS Institute/TAFE Fellowship

Fellowship funded by OTTE, Victorian Government

Published by International Specialised
Skills Institute, Melbourne.

ISS Institute
101/685 Burke Road
Camberwell 3124
Australia

Also extract published on
www.issinstitute.org.au

© Copyright ISS Institute 2006

This publication is copyright. No part
may be reproduced by any process except
in accordance with the provisions of the
Copyright Act 1968.

Whilst this report has been accepted by ISS Institute,
ISS Institute cannot provide expert peer review of the report,
and except as May be required by law no responsibility can
be accepted by ISS Institute for the content of the report,
or omissions, typographical, print or photographic errors,
or inaccuracies that may occur after publication or
otherwise. ISS Institute do not accept responsibility for the
consequences of any action taken or omitted to be taken
by any person as a consequence of anything contained in,
or omitted from, this report.

Table of Contents

1.0	Acknowledgements.....	7
2.0	The Australian Context.....	13
3.0	The Aim of the Fellowship.....	15
4.0	The Fellowship Program - International Context.....	17
5.0	Findings.....	35
6.0	Recommendations.....	37
7.0	The Current Context.....	43
8.0	Attachments.....	45

1.0 Acknowledgements

1.1 General Thank-You

I would like to thank the following for their support and assistance throughout my fellowship and for making this experience one I will never forget:

- ISSI for awarding the fellowship
- OTTE for funding the fellowship
- Goulburn Ovens TAFE
- Karine Strabach for her work in organising the French component
- Jarome Thénet for his assistance in France
- All who allowed me to visit their stores, maturation and/or manufacturing facilities and who so freely offered information
- Everyone who assisted in identifying skill gaps
- All who signed support letters for my applications
- Duncan Hamm and Stephen Bullin for looking after me so well whilst in England

1.2 Awarding Body

International Specialised Skills Institute Inc (ISSI)

We know that Australia's economic future is reliant upon high level skills and knowledge, underpinned by design and innovation.

Since 1989 International Specialised Skills Institute Inc (ISS Institute), an independent, national organisation, has provided opportunities for Australian industry and commerce to gain best-in-the-world skills and experience in traditional and leading-edge technology, design, innovation and management.

Carolynne Bourne AM, ISS Institute, CEO, uses her formula to illustrate the links, **skills + knowledge + good design + innovation + communication = competitive edge**
• **good business**

Based on ISS Institute's initial market research in 1990, an important category emerged, that of 'skill deficiency'.

Skill deficiency is where a demand for labour has not been recognised and where accredited courses are not available through Australian higher education institutions. This demand is met where skills and knowledge are acquired on-the job, gleaned from published material, or from working and/or study overseas.

This is the key area targeted by ISS Institute.

Other ISS definitions are:

- **Skill shortage** is when there is a unmet and recognised demand for labour.
- **Innovation** Creating and meeting new needs with new technical and design styles. [New realities of lifestyle.]
- **Design** is problem solving. From concept to production through to recycling. Design involves every aspect from the way the receptionist answers the phone, when invoices are sent out, where a machine sits on the factory floor, what trees are grown in the forest suitable for furniture or flooring, to whether the product is orange or blue, round or square, flat packed for export, displayed in a retail outlet and the market research to target customers' needs and wants - creating products or services.

Overseas Skill Acquisition Plan (Fellowship Program)

Skill deficiencies are filled by building global partnerships through our **Overseas Skill Acquisition Plan - Fellowship Program**. Australian Fellows travel overseas, or overseas Fellows travel to Australia.

Upon their return to Australia, Fellows pass on what they have learnt through education and training activities such as workshops, conferences, lecturers, forums, seminars and events developed and implemented by ISS Institute, therein ensuring that for each Fellowship, many benefit - the multiplier effect.

ISS undertakes research, marketing, policy and advocacy.

The findings from the Fellows reports and those acquired through our research and education and training activities are made available to firms, industry, commerce, learning institutions and public authorities through ISS Research Institute's consultancy services – again, the multiplier effect.

ISS Institute operations are directed towards bringing skills (traditional and leading-edge technologies) and knowledge to Australian industries, education and government and, in turn, the community in general - new ways of thinking, new ways of working so as to create innovative products and services for local and global markets.

Our holistic approach takes us to working across occupations and industry sectors and building bridges along the way. The result has been highly effective in the creation of new business, the development of existing business and the return of lost skills and knowledge to our workforce, thus creating jobs - whereby individuals gain; industry and business gain; the Australian community gains economically, educationally and culturally.

ISS Institute
Suite 101
685 Burke Rd
Camberwell 3124 Australia

P 61 3 9882 0055
F 61 3 9882 9866
E issi.ceo@pacific.net.au
W www.issinstitute.org.au

1.3 Fellowship Sponsor

Office of Employment, Training and Tertiary Education (OTTE)

Office of Training and Tertiary Education

OTTE is responsible under the Vocational Education and Training Act (1990) for the promotion, planning coordination and administration of vocational training in Victoria.

It advises the Minister of Education and Training, on a range of matters, including strategies to complement Victorian and national economic and social development.

OTTE is responsible for overseeing the administration and coordination of programs for the provision of training and further education, adult community education and employment services in Victoria.

In 1999, OTTE became the major sponsor of the ISS Institute for an initial period of three years. The agreement has been renewed by OTTE for a further three years.

1.4 Fellowship Supporters and Mentors

Patricia Michaelson – La Fromagerie

Ben Crabbe – Neal's Yard Dairy

Randolph Hodgson – Neal's Yard Dairy and President of British Specialist Cheesemakers Association

Karine Strabach

Guilde des Fromager – France

Michel Gurtner – ENIL

Alain Mierral – Fromagerie des Monts de Joux

Alain Claude – Comté Cheesemaker

Faquet Fromagerie

Benoit Bonizzoni – Rocamadour Goat Cheesemaker

Craig Mitchell – Lubborn Creamery

Andy Robinson, Cropwell Bishop Creamery

Duncan Hamm – Christian Hansen

Stephen Bullin – Christian Hansen

Impacting Organisations

Richard Thomas

Bill M^cGinness – Innoven Food Industry Center

Doug Day

Will Studd – Fromagent

Neil Willman – University of Melbourne – Gilbert Chandler Campus

Maxime Nicoller

David Brown – Milawa Cheese

Jacquie O'Brien – VFITB

Andrew Ronalds – Jindi Cheese

Phil Clarke – Food Science Australia

Gavin Russell – Murray Goulburn Co-Op

Geoff Lindsay – Pearl Restaurant

1.5 About the fellow

Name:	Kylie Smyth
Address:	Goulburn Ovens TAFE Fryers St Shepparton, 3630
Phone:	(03) 5872 1269 (AH) 0419 249 265 (Mobile)
E-Mail:	ksmyth@ncdea.edu.au
Qualifications:	2005 (La Trobe University) Graduate Diploma in Vocational Education and Training 2002 (Goulburn Ovens TAFE) Certificate IV in Assessment and Workplace Training 1997-1998 (Melbourne University) Diploma in Dairy Technology
Memberships:	Vice President of the Dairy Industry Association of Australia (DIAA)

Throughout Kylie's career she has gained a great deal of experience within the dairy industry, having worked for Murray Goulburn Co-Operative Co. Ltd and having worked within a number of dairy companies during her time with Goulburn Ovens TAFE.

Currently Kylie is employed by Goulburn Ovens TAFE working within the National Centre for Dairy Education (NCDEA) an initiative of Dairy Australia and Goulburn Ovens TAFE.

2.0 The Australian Context

Generally speaking, the focus within the Australian cheese industry has been on the mass production of cheese varieties such as cheddar and processed cheese. Automated equipment and mass production in the cheese manufacturing industry has resulted in knowledge of the science behind cheese making being lost. Operators producing cheese should have an appreciation of the scientific aspects of cheese making such as pH and temperature in order to produce a product of high quality but this is not always the case due to highly automated plant and equipment which negates the need for the operator to be aware of these things.

The boutique cheese market within Australia is expanding, however there are still many opportunities to extend and improve on the current range of cheese available. Currently the majority of mould ripened cheese available on the market is imported.

The general Australian public does not understand the science and technology behind a “good” cheese. As a result, the appreciation of cheese is not great.

A lot of the cheeses produced in Australia are bland to suit the Australian palate. The full range of cheese available overseas is not currently available on the Australian market. As a result Australians are used to this limited range and are quite happy to continue to select their products from this range.

There is some work being done within the Australian dairy industry to develop authentic Australian cheeses with unique “Australian” flavours however, the majority of mould ripened cheese manufacturers replicate products produced by other countries, such as France. These products include but are not limited to camembert, brie and blue vein style cheeses. There is huge potential within the Australian cheese industry to look outside the square and develop some new Australian style cheeses.

2.1 Impacting Organisations

Australian National Training Authority (ANTA) has been responsible for the development of national training packages. They have since been replaced by Skills Councils, the Skills Council representing Cheese is Agriskills.

University of Melbourne – Gilbert Chandler College campus currently conducting the majority of dairy specialist training within Victoria

Cheese manufacturers – drive the current range of cheese produced in Australia

Restaurants and food service operations – driving Australian market demand

Cheese distribution centers – importing cheese from overseas where there is a gap in availability of locally produced products

Office of Education, Training and Tertiary Education (OTTE) – responsible for the implementation of state government policy in employment and training.

Food Science Australia – involved with research and development into new manufacturing techniques and products

3.0 The Aim of the Fellowship

The aim of this fellowship was to visit a number of different organisations in both France and the UK in order to view and establish “best practice” in both cheese making and cheese maturation.

The skills and knowledge gaps in the original application were quite vast so it was decided in conjunction with ISSI that the fellowship would focus on maturation and packaging techniques used in the manufacture of mould ripened cheese.

Skills and knowledge gained from my fellowship will be used in the development of training courses for both existing and future cheesemakers and presentations and forums for interested bodies and organisations. I would also like to support the Australian cheese industry in the development of new products utilising the natural Australian environment and ingredients to produce some truly authentic Australian cheeses.

3.1 Skill and Knowledge Gaps

The specific skills and knowledge gaps studied:

- The science and historical understanding behind the manufacture of mould ripened cheese.
- Research and development into more sophisticated techniques and processes in the manufacture of mould ripened cheese.
- The environmental impacts on the manufacture of mould ripened cheese.
- Mould ripened cheese and the organoleptic experience.
- Packaging of mould ripened cheese.

4.0 The Fellowship Program - International Context

Whilst overseas a number of cheese production and maturation facilities were visited in order to gain skills and knowledge in the areas identified previously as well as networking with key industry personnel.

After discussion with numerous people within the Australian cheese industry, it was decided that the most appropriate and beneficial country to visit would be France as this is the home of traditional mould ripened cheeses such as Camembert, Brie and Roquefort.

The timing of the fellowship was arranged around the Great British Cheese Festival held in the United Kingdom in September 2004. Whilst in London, selected cheese shops that purchase and mature their own cheese were visited. The French component of my fellowship was arranged predominately by Karine Strabach who has many contacts in the French cheese industry having studied dairy technology at ENIL in Mamirolle.

4.1 Destinations - Host Organisations

La Fromagerie

La Fromagerie is owned and operated by Patricia Michaelson who traveled to France a number of years ago and whilst there sampled Beaufort d'Alpage.

She was so impressed with this cheese that upon her return to London, she established a cheese shop where she purchases young cheese and matures it. The majority of these cheeses are imported from France but some are sourced on the local British market.

Patricia's original shop in Highbury Park has been such a success that she has now opened a larger cheese shop in Marylebone.



La Fromagerie Highbury Park Store

Neal's Yard Dairy

Neal's Yard is a courtyard in the middle of London, where the store was opened in 1979. In those days, the cheese was produced and sold all in the same space. Within a year, Neal's Yard Dairy started buying cheese from farms all over the British Isles.

Neal's Yard Dairy works closely with cheesemakers, visiting farms and tasting the cheese in order to get the best from each farm but also to give feedback to the cheesemaker hence assisting them to improve their product.

Neal's Yard Dairy has two retail stores in London and matures the majority of the cheese they purchase prior to resale over the retail counter.



ENIL – National School of Milk Industry and Biotechnology

ENIL has been training personnel in the agriculture and biotechnology industries since 1888. It houses 300 students and specialises in courses which are designed to fully target industry needs.

The Mamirolle campus of ENIL is located in the Franche-Comté region of France. The college specialises in cheese courses where students manufacture camembert, Comté and the college's own creation, Mamirolle.



Fromagerie Les Monts de Joux

Les Monts de Joux has 7 manufacturing plants with the largest being in Banans. The company manufactures Mont D'Or, Comté, Blue de GEX and Morbier using only unpasteurised milk.



Franche-Comté Region

Strict regulations govern where and how Comté is made. It is manufactured from raw cow's milk in the Franche-Comté region just west of the Swiss border and even a wheel made according to the rules may be denied the Comté label if it fails the required expert-panel taste test.

Approximately 3,200 farmers in the Franche-Comte region milk Montbeliard cows, the only breed allowed for Comté manufacture. AOC regulations require that the cheese be made within 24 hours of milking (a quality issue, as milk quickly deteriorates). Few farmers have enough cows to make an 80-pound cheese every day, so as a result, producing Comté is a cooperative venture, with farmers sharing the profits.

Nearly 200 small dairies gather the milk from the local farms, then culture and coagulate it. The curds are cut fine, cooked, drained, molded and pressed, steps intended to give the finished product a firm, age-worthy texture. When they are just a few weeks old, the wheels go to one of about 20 maturing cellars in the region, where they remain until the resident expert deems them ready for release.



Faquet – Le Nouvion en Thiérache

Faquet is located in le Nouvion en Thiérache in the North of France. Two factories work in conjunction to produce cheeses with unique flavours due to the salty west winds and natural flora consumed by the cows. The company process 90 million litres of milk per year.



Lubborn Creamery

The Lubborn Creamery is situated in South Somerset, England. This is one of the best dairy farming regions in the UK with ideal soils and a good rainfall producing lush sweet grazing. A new creamery was built at Manor Farm in 2002, near the site of the original creamery.

Lubborn pioneered the craft of making Brie style cheeses in the UK. By using an authentic cheese making method, an insistence on quality and sourcing locally produced milk, their soft cheeses typically have a full and yet fresh flavour.

Although the cheese making process has essentially remained unchanged, new technology has improved consistency and quality control. Additionally, the new creamery presents new opportunities for product development, which strengthens Lubborn's position as the leading mould ripened cheese manufacturer in the UK.



Cropwell Bishop Creamery

Cropwell Bishop Creamery is the cheese making base of Somerset Creameries Ltd. which is an independent family company located near Nottingham in the UK. The Company manufactures a variety of English cheeses including Stilton, Cheddar and other regional cheeses. It is one of only 7 Stilton manufacturers in the UK.



4. 2 International Program Content

The Great British Cheese Festival

The Great British Cheese Festival is an event organised for the public where anyone can come along to view and taste a huge variety of traditional British cheeses. There are also a number of seminars that take place, giving participants an opportunity not only to taste a variety of cheese but also to learn about how it is manufactured. The “Great Cheese Hall” had a mind blowing number of cheeses on display, opening one’s eyes as to what is currently produced in Britain alone.

The “Great British Cheese Market” had a large number of cheese stalls where different cheeses could be tasted and purchased. These stalls were generally manned by the cheesemakers producing the cheese. This gives people the opportunity to speak to the manufacturer of the cheese on how it is produced.



The “Great British Cheese Hall”

However, I found this event was not the ideal forum to make contacts within the British Cheese Industry as there were far too many people present and it was almost impossible to speak to any of the cheesemakers. I found out later that The Great British Cheese Awards had been held the previous day as a lead up to the event and it would have been far more beneficial for me to attend this event, which is not open to the public. It would then have provided a better opportunity speak to cheesemakers and other key people within the British Cheese Industry.

The event itself is a fantastic way to promote British cheese to the British public. The Australian Specialist Cheesemaker’s association holds a similar event in Australia with the same intention of promoting specialist cheese within Australia.

La Fromagerie

The store in Highbury Park has 3 maturation rooms where the cheese is stored and matured after purchase. There is one room each for washed rind varieties, hard cheeses and soft/mould ripened cheese. In these rooms the cheeses are lovingly washed, rubbed and turned giving them flavours and characteristics unique to La Fromagerie. The maturation conditions in the room such as temperature and humidity are carefully controlled and monitored.



Mould Ripened Cheese Maturation Room

Once the cheese has been matured satisfactorily, it is then transported to the refrigerated store where it is placed on display for sale. The cheese available for sale depends on the season with lighter, mellower cheeses available in summer and stronger, fuller bodied cheeses available in the winter. The cheese is displayed in the store unpackaged with a large variety of goat's cheese available. The majority of cheese for sale is manufactured from unpasteurised milk.

I was so impressed with the Highbury Park store, I made sure to visit the Marylebone store at a later date.



La Fromagerie – Highbury Park



La Fromagerie – Marylebone

Neal's Yard Dairy

Neal's Yard deals predominantly in traditional British cheese varieties such as cheddar and stilton. The maturation rooms are new and installation had only just been completed when I visited. There were a number of rooms designed for the maturation of different cheese varieties.



Neal's Yard Dairy – Borough Market Store

Speaking and visiting with Randolph Hodgson, I gained a wealth of knowledge on the maturation of cheese and the fabrication and layout of maturation rooms.



Neal's Yard Dairy – Convent Garden Maturation Rooms

Colmar Festive Season Food Exhibition

This event was attended with Karine Strabach who organised my French itinerary. Karine is employed by a dairy company and works as a sales representative. The Food Exhibition is held annually and displays new and existing products available from a variety of companies in a range of areas. There were dairy products, meat, ready to eat meals and breads all on display as well as numerous other products.

The idea in France is to allow the cheese to sell itself and as a result the majority of the cheese at the exhibition was packaged very simply in wooden boxes covered in clear plastic with a simple label attached. Some cheeses were placed into small ceramic pots prior to being wrapped in clear plastic. Cheese was also packaged in gift boxes. There were a number of “flavour added” cheeses that had been wrapped in prosciutto and ham or rolled in herbs and spices.



Different cheese varieties and packaging

Guilde des Fromagers

The Guilde des Fromagers is a cheese organisation in France and whilst there, I had the honour of becoming a member. To become a member, I took part in a ceremony where the committee members of the Guilde were dressed in robes and presented me with a medallion and a diploma. I was also required to make a speech. In French!! After the presentation, was a dinner where I was able to network with the committee members of the guilde enabling me to make fantastic contacts within the French cheese industry. The cheese table was truly amazing with a huge variety of French cheeses on display and available for tasting.



Guilde des Fromager Presentation



Guilde des Fromager Cheese Display

ENIL – Mamirolle

The college is a dairy factory where the students are required to perform their work as they would in a factory in the “real world”. The college has fantastic equipment and facilities to cater for all aspects of cheese manufacture.

Courses run at the college are generally over a period of months or years and students are required to undertake work experience as part of the course. This is generally undertaken overseas.



Mamirolle



Student working with processed cheese equipment

Fromagerie Les Monts de Joux

The tour of Les Monts de Joux was conducted by Alain Mierral who is the commercial Manager. Also on the tour were Eli and Ryo Enoshima who manage Hiada, a Japanese importing company currently importing mould ripened cheese produced from unpasteurised milk from France.

During a tour of the factory, I was able to view new technology used in the manufacture of camembert style cheeses where the vats are on rollers and move automatically from station to station where the milk is inoculated, the curd is set and cut, washed and the whey drained finally to where the vat of curd is tipped and the moulds filled. The maturation rooms and sampling of products produced by Les Monts de Joux was also included in the tour.



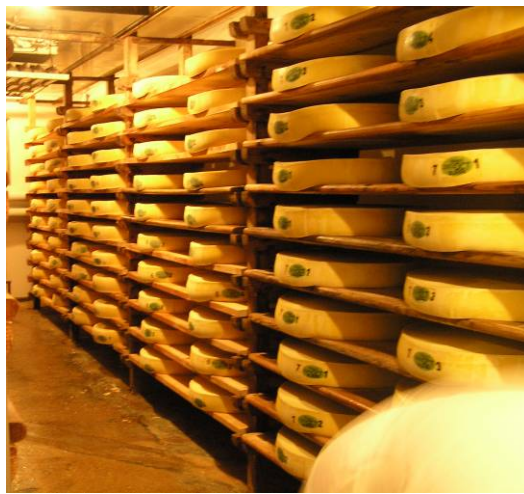
Mont D'Or Maturation

Les Monts de Joux manufacture Mont D'Or, a soft, white mould ripened cheese. The cheese is matured in a pine band and then placed into a pine box smaller than the diameter of the cheese. The box being smaller, causes the surface of the cheese to ripple making the cheese extremely appealing on the shelf. This product is traditionally served warm (room temperature) and spread onto bread but can also be served hot. As a result, the cheese is being packed into units with a ceramic pot and a small bottle of wine. The cheese is heated in the oven and the wine is stirred through as the cheese softens. The cheese is then served hot with bread, potatoes or whatever else you can imagine. Delicious!!

Comté Region

Alain Claude is the head cheesemaker and manager at a Comté manufacturing facility. The factory visited is owned and supplied by a cooperative of dairy farmers.

The manufacture of Comté cheese was viewed along with the preaffinage cellars located at the factory. Alain also arranged a visit to the Comté maturation cellars where thousands of tonnes of Comté are matured each year. One of these cellars is in a disused railway tunnel. During this visit, I met with the head affineurs and discussed the maturation conditions and techniques used.

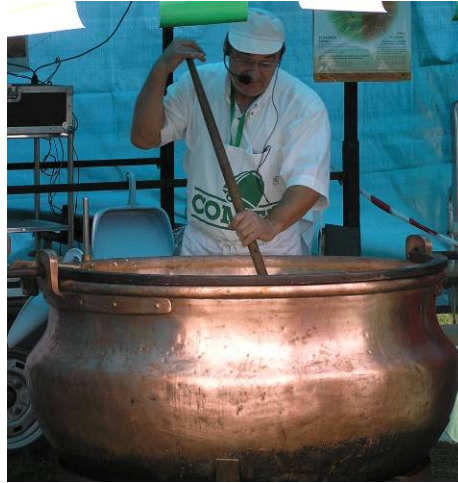


Comté pre-affinage cellar



Comté affinage cellar

The visit to the Franche-Comté region coincided with a Comté family fun day where the Comté style of cheese is celebrated. There were traditional manufacturing demonstrations, parades, family activities and Comté on display. This was a great family day out to celebrate something unique to this area of France.



Traditional Comté Manufacture

Faquet Fromagerie

Faquet Fromagerie manufactures products using an ultrafiltration process. The factory is divided into different sections based on the type or colour of the mould used to produce the cheese. During a tour of the factory, the cheese production process and maturation rooms were viewed and discussed.

Goat's Cheese Factory

At the factory I met the head cheesemaker and manager Benoit Bonizzoni. The tour incorporated the equipment and processes used to manufacture goat's cheese as well as the maturation rooms. The manufacture and maturation of goat's cheese was discussed extensively with Mr Bonizzoni.



Mr Bonizzoni and a vat of goat's milk

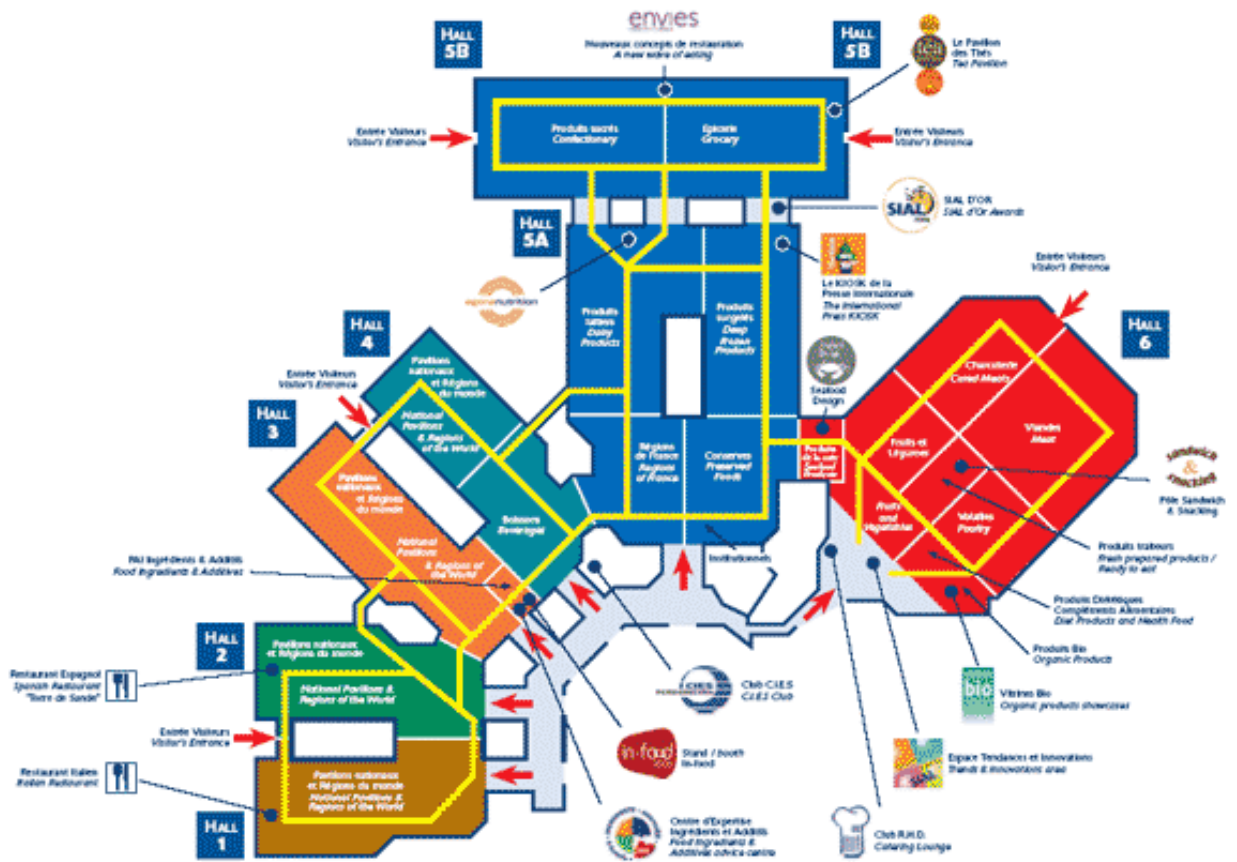


Goat's cheese produced by the Rocamadour group

SIAL International Food Expo – Paris

Attending the SIAL Food Expo in Paris was not part of the original fellowship plan, however upon hearing the expo was being held I was able to obtain tickets so decided to attend.

The expo was massive and to do it justice a full three days was needed in order to experience the entire event. However due to limited time, only one day was available. As a result, the area focused on was the cheese hall and dairy products where viewing and tasting of a huge range of cheese took place as well as the generation of many contacts within the French cheese industry.



SIAL Floor Plan

Lubborn Creamery

The factory equipment is very new and set up in a manner very similar to that at Les Mont des Joux for the manufacture of Mont D'Or with the vats travelling around to each station on rollers for the next step in the production process. The maturation rooms were viewed and maturation conditions discussed.

Cropwell Bishop

Cropwell Bishop Creamery is one of just 7 Stilton manufacturers in the United Kingdom.

Once again the cheese manufacture process and maturation rooms were viewed. Andy Robinson is the manager of the factory and maturation techniques and conditions were discussed with him.

5.0 Findings

Festivals and fun days as a means to promote the cheese industry

Cheese is celebrated in the UK and France in the form of festivals and fun days. This is a fantastic way to promote cheese and give the general public an overview of the work and science behind the manufacture of cheese.

Variety leads to more sophisticated consumer choice

The variety of cheese available in the supermarkets alone in the UK and France is also astounding. In France in particular, cheese is consumed as a part of almost every meal resulting in a huge demand for the product. Most households also have more than one style of cheese in the fridge such as a camembert, a goat's cheese and a blue style cheese.

The skills and knowledge gained from this experience include:

- A greater understanding of the bacteria used in the manufacture of cheese and its reaction to differing maturation conditions such as temperature and humidity.
- An understanding of the best practice equipment to use in the manufacture of mould ripened cheeses such as camembert and brie.
- An understanding that there are many ways in which temperature and humidity can be controlled within a maturation environment. The best way to do it depends on who you speak to and where and how the process is to be utilized. Randolph Hodgson has the greatest knowledge in this area as he has just completed building new maturation rooms for his establishment. He still feels and wishes that he had done some things differently for better control.
- Packaging of mould ripened cheese within France and the UK can be very plain and quite often, clear plastic was simply used to package the product. This is ideal as it allows the cheese to sell itself based on colour and texture. It would be sacrilege to package a product such as Mont D'Or in anything other than clear plastic as it is so beautiful and appealing to the eye.

Labelling and branding was generally achieved by a simple sticker being placed over the clear packaging. In all cases witnessed, the label did not cover the cheese in its entirety so some of the cheese was still visible. Some packaging particularly that in the Rocamadour goat's cheese region of France, contained a photograph of the cheesemakers making purchasing this cheese more personal.

- The organoleptic differences between cheeses made in the same area at different times of the year or by different cheesemakers were amazing. The flavours and aromas could vary quite dramatically and was often the difference between what I thought was a really nice cheese to one I did not enjoy at all.

Maturation techniques and processes also play a large part in the organoleptic development of cheese. As they do not actually manufacture the product, La Fromagerie rely on their maturation processes to give their cheese that unique “La Fromagerie” flavour as do Neil’s Yard dairy.

Whilst in France, I also tasted my first cheese produced from unpasteurised milk and found this to be a delightful experience. The flavours within these cheeses were much stronger and sharper than those from cheese produced with pasteurised milk.

All in all I was introduced to the fantastic range and variety of cheese available in France and the UK. My sensory organs had a field day tasting, smelling and feeling all the beautiful cheeses available. My bathroom scales upon my return home were not so appreciative!!

6.0 Recommendations

6.1 The Opportunity

Generally speaking, the majority of cheeses consumed by the Australian population are cheddar types or processed cheese. There are huge opportunities when it comes to the promotion of mould ripened cheese in order to increase the general population's consumption of these products. This can be done in the form of advertising and by holding festivals similar to the Great British Cheese festival such as that held by the Australian Specialist Cheesemaker's Association to celebrate the Australian Cheese Industry.

French cheeses in particular generally stem from a product that was made accidentally such as Roquefort which was first discovered when a shepherd left a piece of cheese in a cave. When he came back to it a few days later, it was covered in a blue mould. Being very hungry, the shepherd consumed the cheese and was delighted by the flavour the mould added to it. This is when Roquefort was born. Many cheeses have been discovered in this way and it would be fantastic to develop some truly authentic Australian cheeses reflecting the character of the unique Australian environment.

A lot of the mould ripened cheese available on the Australian market is imported. The mould ripened cheese industry within Australia is certainly expanding and our products are improving all the time, however there is still plenty of opportunity for further improvement and product expansion.

There is also the opportunity to develop authentic Australian cheeses using flavour added products such as "wild foods". Cheeses containing wattle seeds or bush tomatoes would surely appeal to local and international markets.

6.2 Action Plan

Government

The Federal and State governments can support the specialist cheese industry by granting funds to those wishing to start out in the industry. The costs of setting up a cheese factory are substantial. Equipment can be very expensive as can be building a facility to meet Australian standards. For many wishing to start a cheese factory, these costs act as a large deterrent.

Local councils could support the running of cheese festivals such as those visited in the UK and France. These would provide a fantastic opportunity for the Australian public to develop an understanding of the variety of Australian cheese available on the market and to develop a taste for their flavours.

Industry

The Australian cheese industry is constantly growing and expanding and I hope to have the opportunity to work with cheese companies in order to assist in the expansion of our cheese range as well as in the development of cheese unique to Australia. This will be achieved through my involvement with cheese programs and training through the NCDEA. These programs and training courses are currently being reviewed and developed.

Industry can assist with the expansion of the Australian cheese industry by developing its people through activities such as study tours and courses. Companies could join forces and work together when it comes to training their staff by arranging training together or developing an employee exchange program where one employee may work for a number of companies over a period of time giving them exposure to a variety of products and processes.

Industry bodies could hold more cheese events and festivals around the country in order to promote the industry. The majority of these events are currently held in the cities but it would be great to hold some of these events in rural areas as well in order to promote the cheese industry to regional areas, particularly given this is where all the milk and the majority of the cheese is produced.

Business

There are many specialty cheese businesses being developed around the country. This will result in an increase in the variety of cheese available on the market as all businesses want to develop their own unique flavours. Competition between businesses will also result in new and improved products on the market. Good marketing, appropriate packaging and branding differentiation will assist this individual value adding to Australian cheese products. Businesses working together would help achieve the above by marketing a cohesive 'Australian cheese brand'.

Professional associations

The Australian Specialist Cheesemaker's Association will continue to expand and offer a support and advice network to specialist cheesemakers.

The Dairy Industry Association Australia will continue to work with specialty cheesemakers and there is a possibility of holding conferences specific to the needs of Australia's specialty cheesemaking industry.

Dairy Australia provides support to Australia's specialty cheese industry by providing a "help desk" for boutique cheesemakers. This is an excellent source of advice and information for the industry and will hopefully continue on in the future.

Food Science Australia will continue its work in the research and development of cheese products resulting in the introduction of new products to the market and improvement of existing products.

Education and training

In 2004, the Innoven Food Industry (a division of Goulburn Ovens TAFE) received a grant to purchase cheesemaking equipment. Once we have purchased the equipment, I hope to develop training courses, both for those interested in cheese making as a hobby and people currently working within the dairy industry.

The University of Melbourne, Gilbert Chandler Campus currently offers courses catered to the specialty cheese industry. These courses include cheese theory, practical cheesemaking for those currently making or with a vested interest in cheese and farmhouse cheesemaking courses which are designed specifically for those wishing to start a cheesemaking business.

In late 2005 the National Centre for Dairy Education – Australia (NCDEA) was formed. NCDEA is an initiative of Dairy Australia and Goulburn Ovens TAFE and has assumed the delivery of agriculture and food processing related training programs following the decision of the University of Melbourne to reposition its Faculty of Land and Food Resources to focus on the delivery of higher education programs and research.

The NCDEA will continue to offer the programs delivered by the former Gilbert Chandler campus and have a working group whose primary role is to develop both existing and new programs for the Australian Specialist Cheese industry. I am currently a part of this group.

The NCDEA are working with Food Science Australia to ensure the best and most up to date facilities are available for the delivery of our cheese courses.

Community

The community needs to continually support the Australian Specialist Cheese industry by purchasing Australian cheese products. Generally speaking, Australians prefer a bland flavoured cheese. As a community, we need to expand our taste buds to encourage the specialty cheese industry to develop new and improved products with enhanced flavours. Community festivals such as the ones visited in the UK and Europe could be developed and supported by local Councils who are closest to 'the ground roots' of society. Festivals such as the 'Slow Food Festival' are beginning to gain a wide acceptance as awareness of the value of good nutrition and a variety of food groups grows.

ISS Institute

The ISS Institute continues to play a key role in the outcomes and future actions related to this fellowship. They will support and assist in conducting conferences, seminars, workshops and displays as well as giving general support to the concept of value adding to Australian produce.

6.3 Further Skill Gaps

- A working knowledge of the equipment such as that used at Les Monts de Joux and Lubborn Creamery for the manufacture of mould ripened cheese.
- An understanding and working knowledge of the research and development techniques used in France and the United Kingdom for both the development of new products as well as the continuous improvement of existing ones.
- The manufacture of cheese from unpasteurised milk. In this context Sandra Vazzoler has been granted an ISS Institute/Veneto Fellowship for travel in 2007 where she will be travelling to Italy to study the manufacture of cheese from unpasteurised milk.
- Promotion in the area of mould ripened cheese. Mould ripened cheese needs to be promoted more to the general public in order to increase consumption and demand. This in turn, will prompt mould ripened cheese manufacturers to develop new products and improve existing ones.

6.4 Summary

Having the opportunity to take part in this fellowship has re ignited my passion for cheese. My knowledge on the maturation and manufacturing techniques used overseas has improved. I am still yet to get over the variety of cheese available and the quantity of cheese consumed in France in particular. I hope now to become a “champion” of cheese, furthering my own skills and knowledge as well as working with others to improve and enhance the knowledge of cheese both within the general Australian public and the Australian dairy industry.

Thank-you.

7.0 The Current Context

It has been two years since undertaking this fellowship and since then there have been many changes to the industry with respect to training and education.

The National Centre for Dairy Education – Australia (NCDEA) is an initiative of Dairy Australia and Goulburn Ovens TAFE and following the decision of the University of Melbourne to reposition its Faculty of Land and Food Resources to focus on the delivery of higher education programs and research, GO TAFE has assumed the delivery of agriculture and food processing related training programs

Education and training delivered by the NCDEA will be both responsive and proactive to industry and student learning needs, and will facilitate the alignment of dairy education and training under one umbrella.

The NCDEA will continue to offer the programs delivered by the former Gilbert Chandler campus and will have a working group whose primary role is to develop both existing and new programs for the Australian Specialist Cheese industry. I am currently a part of this group.

The NCDEA are working with Food Science Australia to ensure the best and most up to date facilities are available for the delivery of our cheese courses.

As well ISS institute have since been proactive in awarding further fellowships in the area of cheese making and marketing in Australia. Once the knowledge of these fellows is combined there will be an even greater opportunity for growth, development and specialisation within the cheese industry with an eye to international export markets.

8.0 Attachments

Attachment 1 – Current courses offered by the NCDEA



NCDEA Food Processing Werribee - Dairy Technology Short Courses 2006

To register for any of these courses, call the Short Course Administrator, Shirley Steward at the Werribee Centre, on (03) 9217-5228 or 1300 733 111

Cheesemaking Theory Course

Learn to be a master over your cheese. Why is milk quality critical and how can control it. Understand which starter to choose, where phage comes from and why all rennets are not the same! Featuring Fresh cheese, Fetta, White and Blue Mould cheeses, Washed Rind Cheeses, Cheddar, Mozzarella, Romano, Pepato, Parmesan types, Edam, Gouda and Swiss. You'll learn what makes a Camembert bitter, why a washed rind cheese needs special attention, where the control points in the process are, basic troubleshooting techniques and much more!

Intensive Practical Cheesemaking School

An all practical cheesemaking week. Participants do all work under careful supervision. You will standardise the milk, pasteurise it then make the cheese. This is an ideal opportunity to get some hands on experience. You will make clothbound rinded Cheddar, white mould cheese, Blue vein, washed rind, gourmet Fetta, lactic curd, Romano and Gouda. You'll also learn the critical quality control points in the processes, basic trouble shooting techniques and much more! Limit 12 per course.

Cheese Sensory Analysis and Judging

The course will contain mostly practical but also theory sessions. This course is for those people working in the field that want an introduction to sensory evaluation and grading.

Farmhouse Cheesemaking

The course is specifically designed for people considering the commencement of a specialty cheesemaking enterprise. The course will introduce you to the logistics of starting and operating a specialty cheesemaking enterprise.

Mastering Membranes

Membranes are a valuable resource, very expensive and unforgiving! Can you afford not to train your people in their use and care? This course will enlighten your operators and help protect your valuable investment. Principles and applications of Ultrafiltration, Reverse Osmosis, Nanofiltration and Microfiltration as well as membrane materials, modules, process optimisation, cleaning, sanitation and storage are covered.

Practical Food Microbiology

How do microbes grow? Which ones cause spoilage and Food Poisoning? How can we control microbial growth? Develop an understanding of the role of microorganisms in Food Safety and Food Quality via lectures and hands on practice in the laboratory. Develop practical competencies in Australian Standard methods (AS1766) such as preparation of laboratory media and broths, preparing samples and diluents, Standard Plate Counts, Coliform, E.coli, DMC, Delvotest, psychrotrophs, thermophiles, Staphylococcus, Yeast and Moulds, identification techniques and more!

Ice Cream Essentials

Learn how to formulate, make, and evaluate.

What are the legal requirements? What is the role of stabilizers, emulsifiers and other ingredients? How do you make gelato, frozen yoghurt, low fat and premium ice cream? Develop an understanding of the ingredients and processes involved in producing quality commercial ice cream via lectures from key industry speakers and hands on practice in our pilot factory. An ideal course for manufacturers, ingredient/material suppliers or retail personnel.

Pasteurisation and UHT Processing

This course concentrates on the many basic processes used to prepare liquid milk products, including flavoured milks and modified milks, custards and dairy desserts. Features pasteurisation, ESL, UHT and peripheral processing. The course can be used to accelerate your progress in the Pasteuriser Operator Certificate.

This course is also available in-house and can be adapted to specific customer requirements.

Evaporation and Drying School

This course focuses on the principles of milk concentration by evaporation and spray drying technology. Both theoretical and practical aspects of milk powder manufacture are included. In depth lectures and class discussions are supported by hands-on laboratory and practical sessions using the campus Weigand TVR evaporator and Drytech tall-form spray drier. Issues of plant components and functions; psychrometrics; particle drying theory; production operation & control; process control & safety; product quality, handling & storage; and new industry directions will be discussed by centre staff and invited experts.

This course is also available in-house and can be adapted to specific customer requirements.

Sensory Analysis – Dairy Products

Increase your understanding of sensory evaluation. What constitutes a bitter, sweet, sour flavour? Includes the sensory evaluation of skim, milk & cream and other dairy products. What is an acceptable or unacceptable flavour? What does cream with high acidity taste like compared to low acidity? The course includes the theory and practical activities of sensory evaluation of dairy products.

This course is also available in-house and can be adapted to specific customer requirements.

Butter 'n Spreads

How do you minimise fat losses during buttermaking? Find out what affects the product quality! Is fractionation the answer to soft butter? How can you maximise profits by increasing overrun? How is butter graded? What are Dairy Blends? Is deodorisation of cream necessary? What are the alternatives? Learn about the differences between AMF, Butteroil and Ghee! How can oxidation of AMF be minimised? This course covers the Buttermaking and AMF disciplines.

Dairy Food Manufacturing as a Small Business

Basic small dairy/food processing business requirements will be covered, including building needs, Food Standards Code - legal requirements, food safety and food labeling requirements, OH&S, quality assurance, record keeping, marketing and taxation issues.

Lab Analysis - Physical & Chemical methods

A course that answers all questions related to milk and dairy product physical and chemical analysis. Participants will learn by lectures and hands on practice in the laboratory. This course covers basic laboratory techniques, data interpretation, sampling, instrumental methods, rapid methods and Australian Standard methods

Yoghurt Makers School

Want to understand the process of making yoghurt, Trying to make sense of probiotics such as casei, acidophilus, GG and Bifido? Want to learn how to make these products, how to evaluate their quality and what causes product defects? This course is for you!, The course will bring you up to date in this rapidly expanding field.

Dairy Foods Fundamentals

A course specifically designed for middle to higher level management staff.

The program provides operational and supervisory staff with sufficient underpinning knowledge of dairy science, technology and processing so that they can make informed decisions and judgments in the business and trouble shoot issues within their areas of activity. The target audience is not limited to production, and customers will benefit by inclusion of staff from all areas of the business.

This course is usually run in an intensive residential block, and is adapted to specific customer requirements after consultation.