Know-how for Horticulture™

Study Tour to the UK and Netherlands to investigate value adding opportunities for potatoes, September 2003

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PIRSA

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Value Adding Potato Tour
September 2003

England & The Netherlands

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Executive Summary

The Value Adding Potato Tour to the UK and The Netherlands took place in September 2003. The tour provided participants with a wealth of ideas to be adapted for the Australian Potato Industry.

The tour was developed in direct response to the National Potato Business & Marketing Conference 2002, which identified the need to transform potatoes from just a commodity. It is vital for potatoes to compete with so-called 'easy to prepare' foods such as rice and pasta.

Potatoes are an important part of the Australian multicultural diet. They can be bought loose or bagged, washed or brushed, frozen or as crisps and they can be eaten mashed, boiled, baked, fried or as part of any number of exciting multicultural dishes.

The challenge facing the industry has shifted from field and production systems to creating new market opportunities. The industry needs to recognise consumers are busy and have less time for food preparation and take advantage of Australia's multicultural make-up.

We need to promote the potato as versatile, exciting and, above all else, CONVENIENT. The United Kingdom (UK) and European markets are already working towards meeting these goals.

Supply companies in the UK are packaging potatoes so as to provide consumers with vital information about the variety and cooking methods and to cut preparation time while providing new and exciting meals. Ready-to-eat or par-processed products with quick, simple instructions are gaining popularity and capturing a greater share of consumer spending.

The study tour was designed to give people involved in the various stages of the Australian Potato industry the opportunity to experience, first hand, how the potato industries in the UK and The Netherlands operate. The tour was designed to have a focus on value adding opportunities that could be adapted for the Australian industry but also provided valuable seed breeding information.

The tour visited a variety of research, breeding, packing and processing sites as well as a number of farms, where we observed: breeding programs, farming practices, packing facilities and processing lines in action. The tour also attended British Potato, the British Potato Council (BPC) organised event that takes a comprehensive seed-to-shopping trolley approach to looking at Britain's £3.6 billion potato supply industry. British Potato is valuable for growers, suppliers, merchants, packers, processors and retailers.

The UK Industry has experimented with various packaging designs and methods and the Australian Industry needs to acknowledge their successes and failures. Instead of walking the same path to discover what succeeds and what fails we should look at the UK successes and research them further according to the Australian market. It is important to assess whether the Australian retailers and consumers are willing to pay a premium price for innovative packaging.

The stand out packaging feature was pillow packaging, a very attractive and modern method of presenting potatoes. The pillow packs are very neat and are printed with valuable information regarding the variety of potato, best use, cooking method and origin.

Another opportunity the Australian Industry needs to consider seriously is fresh potatoes packed for microwave cooking. Fresh washed new potatoes are packed in a microwave safe punnet ready to be heated and served. These punnets can also have butter, herbs and spices added to them.

A number of companies in the UK have also developed a use for fresh potatoes 30mm and under, they are pillow packing them and marketing them as salad potatoes. This is a process that could be easily adopted for the Australian market. Salads are synonymous with the Australian summer and BBQs, small potatoes packaged this way would allow consumers access to a potato that is quick and easy to prepare and could have a number of uses. Currently potatoes of this size attract very little remuneration, thus providing growers with an opportunity to earn money for previously unwanted product.

Supermarkets in the UK are becoming more powerful. Some dictate the pesticides growers can use, as they want to promote themselves as having growers who use less pesticides and are environmentally friendly. Others, because of the fight for market share, demand specifically grown crops that will set them apart from the crowd. This causes problems when they do not purchase the entire crop and growers are left to sell it elsewhere.

The UK industry is currently working with the supermarkets to educate them on the necessity of some pesticides and on the problems specialised crops can cause. They are also working with the growers to manage issues before they travel down the line to processors and retailers.

The Value Adding Potato Trip to the UK and The Netherlands provided a valuable insight in to the workings of these two industries. It allowed participants to see the progress being made in seed breeding, processing and marketing. It provided participants with the opportunity to take the information gained and adapt it to their businesses and the Australian Potato Industry.

Tour participants enjoying a meal in Perth, Scotland.

Tour participants at SCRI in Scotland.

Overviews

Dr Mike Storey – Director, British Potato Council

Day 2 (04/09/2003)

Background

Mike Storey, Director, BPC.

The British Potato Council (BPC) was established by the Potato Industry Development Council (PIDC) Order 1997, under the Industrial Organisation and Development Act 1947, and came into being on 1 July 1997. Changes relating to the way purchaser levies are charged were introduced by the PIDC (Amendment) Order and received Parliamentary approval in May 1999, the changes came into effect on 1 July that year.

The (BPC) is a Non-Departmental Public Body (NDPB) funded by statutory levies, it is also an all industry body with 16 appointed Council Members and 65 employees. Helen Christy is the Chief Executive and Mike Storey and Inga Martin are the other two directors of the business. Staff are employed throughout the UK.

The BPC is funded by a statutory levy that is paid by 5500 growers and 850 trade purchasers. It is a split levy and the 2002/2003 levy rates were charged at £39 per hectare (paid by growers) and £17 per tonne (paid by merchants at first purchase). As it is a statutory levy, it is looked upon as a tax - it is taken off the bottom line. The BPC promotes it is an investment.

The levy earns the BPC approximately £6 million per year, which is roughly allocated as follows:

- Research and Development 25%
- Marketing Information & Technology Transfer 24%
- Marketing 20%
- Seed and Export 6%
- Other 25%

The BPC spends 20% of its budget (approx £2.2 million) on generic marketing, which aims to promote potatoes as a healthy meal option. Their campaigns promote potatoes as a whole (early, processed etc.) and what they try to do is produce good multipliers from their marketing campaigns. They try to co-campaign with products that can work with potatoes and therefore raise the profile of potatoes through association and extend the life of the campaign.

For example, potatoes are a good accompaniment for meat and chicken. Thus, forming a relationship with these industries would allow them to work collaboratively and extend the life and value of their marketing campaigns.

They work with companies that supply ready-meals to introduce potatoes as part of the package. Commercial funding could then be used; along with the funding they already receive, to create the multiplier effect. Typically, they aim to achieve between an 8 and 12 fold multiplier on their marketing span. In some of the campaigns they have picked up a 24 multiplier in terms of column inches or TV campaigns.

They are continually looking to improve the efficiency of production and develop the advice they give growers.

The R&D priorities of the BPC are:

Pest & Diseases	Bruising/damage
Process quality	Water availability
Seed physiology	Storage
Size & uniformity	Environment
Residues	

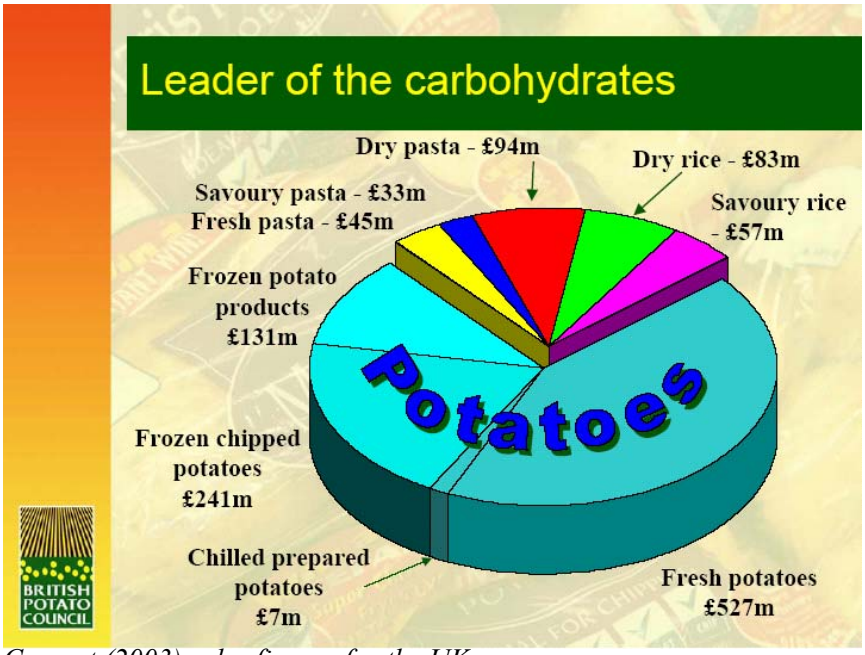
BPC marketing principles:Focus on the core values of the potato and offer the consumer a 'meal solution'

- Spend where we can make a difference
- Do "fewer things, bigger and better"
- Involve the supply chain to maximise value

Outcome

The BPC is promoted like a brand; the same way as many other businesses. People recognise the brand not just within the industry but also outside the industry. To have an impact in supermarkets the general public needs to recognise the BPC logo and instantly associate it with British produce. Thus, creating a feeling of loyalty towards British produce.

The trend, worldwide, has seen rice and pasta competing for a share of potato sales. There was an 11% increase in the consumption of rice and pasta between 1998 and 1999 in the UK. However, potatoes are standing tall as the leader in carbohydrate consumption.



Current (2003) sales figures for the UK.

The BPC recognises the UK Potato Industry is facing the following challenges:

1. Understanding the business environment for potatoes - comprehensive market and consumer research and related communication activity.
2. Improving industry knowledge & technique - to make a real difference, it is essential for BPC activities to be communicated in a way to allow effective adoption by the industry.
3. Market focus & industry attitude - adoption of a strong market focus and an open-minded attitude built on trust, openness and co-operation.

What have the BPC done?

Stage 1
Focus groups, in-store research & Hall tests.

- *Highlighted a number of opportunities*
- *Developed a meal occasion model*
- *Supply chains developing strategies to address opportunities*

Stage 2
Understanding the key elements of change and how this will affect the need for potatoes and potato products.

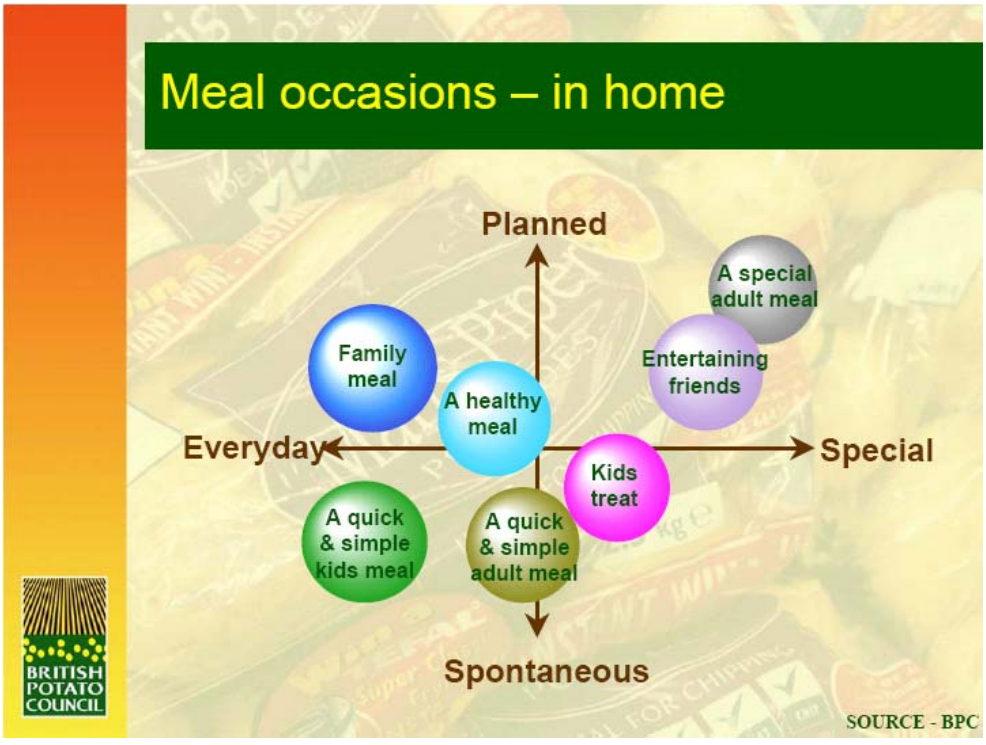
Stage 3
Understanding how these changes will affect the sizes of meal occasions and the supply of potatoes required.

BPC research found that meal occasions drive demand. They are the key variable as they:

- Dictate variety and/or potato type bought
- Dictate packaging format required
- Dictate preparation format
- Highlight specific strengths
- Highlight specific gaps

The research also identified seven key in-home occasions (detailed below):

- Family Meals
- Special Meals for Adults
- Entertaining Friends
- A Kid's Treat
- A Healthy Meal
- A Quick & Simple Kid's Meal
- A Quick & Simple Adult Meal



It also highlighted fresh and chilled/semi prepared opportunities for potatoes (detailed over the page).

Opportunities for potatoes?

FRESH

- Offset slow volume decline by added value products
- Scope for premiumisation
- Local provenance
- Packaging & merchandising
- More guarantees - health

BRITISH POTATO COUNCIL

Opportunities for potatoes?

CHILLED/SEMI PREPARED

- Rapid sector volume increase - unit value opportunities
- Premium products
- Ready meals
- Speedy & exotic solutions
- Meals for one

BRITISH POTATO COUNCIL

Doug Henderson – CEO, Fresh Produce Consortium

Day 4 (06/09/2003)

Background

Doug Henderson, CEO FPC

The UK's fresh produce market is static and has lost value, which they want to reverse but in the longer term the market is going to continue to decline.

From the Government's point of view there is a public health argument in respect to the value of fresh fruit and vegetables as a preventative health strategy.

The low consumption of fruit and vegetables has influenced a rise in dietary related diseases. The UK Government has projected the cost of these dietary related diseases to total £13 billion per year.

That was the basis for the partnership between the Fresh Produce Consortium (FPC) and the government to increase fruit and vegetable consumption.

The whole project is based on health priorities but there is also the opportunity to stimulate production of fruit and vegetables in the UK.

They have initial funding of £52 million for the project, which will allow them to continue the 5 a day program to the end of next year.

The program is delivering free fruit and vegetables to schoolchildren and has in fact reached the millionth child, who is getting free fruit and vegetables in school, every day. They intend to have reached a total of 2.3 million children with this scheme by the end of 2004. This involved the creation of a whole new distribution network.

The initial range of fruit included bananas, apples, pears and soft citrus and now extends to kiwifruit, peaches, nectarines and plums. They are also starting to supply carrots as carrot sticks, celery and they intend to extend the range of vegetables and by the end of 2004 have a complete product range.

At home, children are not eating fruit and vegetables, they're actually eating a diet of fat, salt and sugar, i.e. burgers, chips, crisps etc, to the point where it has become an epidemic. Young children, up to the age of 13, are suffering from obesity and diabetes. There is a real problem and they are making a serious attempt to change the situation.

They've established 66 community projects around the country, principally in deprived areas, and there is also a social argument behind because the people suffering are the lower socio-economic groups, in the inner cities.

It is not that they can't afford to buy the right foods, the children have a physiological pre-disposition to eat fat, salt and sugar and they don't eat fruit and vegetables. They will eat manufactured foods that have these 3 ingredients in them and the problem is they get hooked and won't eat fruit and vegetables as a result.

After 2004, providing they've implemented the whole project effectively, it will be taken over by the National Health Service (NHS) and will then be funded by the NHS.

In regards to stimulating the industry, this would be mainly the vegetable industry as 90% of fruit in the UK is imported. The vegetables should all be domestically grown; there is a real opportunity for UK producers to build up the domestic production of vegetables to meet this new demand.

The supplying companies for the fruit tend to be the much larger well-established importers or UK growers. On the distribution side they tend to be a mixture of relatively small locally based companies who buy off wholesale markets, have small vans and are already distributing to restaurants and businesses like that.

Current consumption of fresh produce in the UK is 7 million tonnes and the public health target is 400 grams per person per day. In England alone, that means an additional 1 million tonnes or half a billion pounds worth of produce at farm-gate prices or import prices. In Scotland they want to double consumption, as their health problems are the worst in Europe, in terms of diet.

This provides the industry with a huge opportunity, but there are 3 big issues they need to overcome:

- Customers in the UK want no pesticides used, but the realistic position is the minimal use of pesticides.
- There is also a strong demand for environmental conservation - no intensive agriculture destroying the environment.
- Finally, there's a much greater concern with worker welfare, the impact on workers on the land of what is happening with farming.

FPC recognised the need to have government backing and worked together to develop a system of Integrated Crop Management (ICM). They developed the assured produce scheme: use of non-chemical means of crop protection, careful monitoring instead of spraying crops on a regular basis, and only using chemical interventions when absolutely necessary. The whole idea of pesticide use is to use as little as possible and only as a last resort.

During the last 5-6 years the UK now has 74% of their potato crops converted into ICM systems of production, all being independently audited on a regular annual basis. Fruit, salad and vegetable crops are also managed with this system. It has been internationalised by UK and Continental retailers who used the principals as a basis for EUREPGAP. The media are a major problem in regards to the issue of pesticides, examples of UK headlines are below:

"Poison Warning on fruit and vegetables, half of all fruit and vegetables on supermarket shelves contain chemicals that have been linked to cancer."

It is a true statement but it fails to mention that the residues are all below the Maximum Residue Limit (MRL) and they don't present any hazards to the population (adults or toddlers).

The regulatory authority in the UK that controls pesticides, the Pesticide Safety Directorate (PSD), produce quarterly reports that go into the public domain. They name and shame retailers and suppliers concerning pesticide residue. Retailers such as Williams Morrison and the Tesco group are named and it gives all the details of all the surveillance results in the last quarter. That is why it is true that half the fruit and vegetables do have residue but none of them are over the MRL and there are no non-approved uses.

Another problem is the legislation of the MRLs. Throughout Europe there were 823 approved pesticides, 126 products and product groups, with each active ingredient and product having an MRL controlled by the PSD. Multiply 823 by 126 it comes to over 100,000 MRLs for the European Union.

The European Union decided to harmonise and have only one piece of legislation with very strict approvals on the actives and the MRL. The result being that instead of having 823 actives available it is being reduced to about 250. They are going to lose a huge number of the actives they traditionally had for crop protection purposes. Also, because the agrichemical companies failed to support the review of a vast number of the MRLs (particularly in horticulture) have defaulted to zero.

Developing countries will be negatively affected as they are using crop protection methods that leave residues, which means they cannot export the products to the European Union. An initiative has been setup between the UK and a European organisation to tackle this for developing countries. Their objectives are to inform people of the changes and build up the capacity to cope with pesticides and their management.

The current situation:	fewer alternatives	greater risk of long-term resistance
	post harvest problems	loss of post harvest fungicides
	(people need to see pesticides as a precious resource, not an evil poison)	

Events

British Potato

Day 2 (04/09/2003)

Background

A two-day event organised by the British Potato Council to bring the many sectors of the potato industry together. It covers all aspects from growing and handling through to packaging and processing and retailing the crop. The event was held on a large site at Newark and included seminar facilities, harvesting demonstrations and grading and handling displays.

The entrance tent to British Potato 2003

The event showcased:

- Around 200 of Europe's leading companies
- A large-scale harvesting machinery equipment demonstration
- Grading and handling working displays
- Food packaging and labelling machines in operation
- Specialist areas
- A Doing Business Centre
- Keynote presentations and seminars by renowned industry experts

BP 2003 provided the opportunity to:

- View technology advancements ranging from crop production through to packaging - including best practice advice and the latest products and services
- See and discuss farm, packing, processing and materials handling machinery first hand
- Look to the future by discovering scientific advances and the research and development work being done by the BPC, universities, research centres and commercial companies
- Consider marketing issues - from new outlets to overall consumer trends to non-food opportunities
- Understand the key issues facing the UK potato industry and how they compare to the Australian Potato Industry
- Create and/or maintain relationships with suppliers (machinery, chemical and packaging), customers and colleagues.

Outcome

British Potato is an event is organised and marketed so as to draw the different sectors of the UK Potato Industry together. The Australian Potato Industry needs to recognise the strengths and benefits gained by working in such a manner. The formation of a united body and the implementation of a mandatory levy from growers and merchants would allow the industry to work collaboratively to increase profile and, ultimately, potato sales.

The UK Industry has experimented with various packaging designs and methods and the Australian Industry needs to acknowledge their successes and failures. Instead of walking the same path to discover what succeeds and what fails we should look at the UK successes and research them further according to the Australian market. It is important to assess whether the Australian retailers and consumers are willing to pay a premium price for innovative packaging.

One opportunity the Australian Industry needs to consider seriously is the fresh potatoes packed for microwave cooking. Fresh washed new potatoes are packed in a microwave safe punnet and then heat-sealed. These packets only need to be pierced before being placed in the microwave for 8 minutes. These punnets can also have butter, herbs and spices added to them.

The dedicated grading area at British Potato 2003:

Some of the packaging on display at British Potato 2003:

Above: Pre-washed ready to Microwave punnet.

Above and Below: Pre-prepared meal solution.

Left: Quantity rather than weight packed baking potatoes.

Above: Pre-prepared flavoured wedges.

Above: Pre-prepared salads, vegetables, and fruit in small punnets..

Netting bags, allow produce to breathe and not sweat.

Heat sealed punnets.

Sealed punnets.

Organic pillow packed potatoes.

Pre-prepared soup mix. Casserole and bake mixes also available.

AGF Totaal

Day 12 (15/09/2003)

Background

AGF Totaal held at Ahoy' Rotterdam (the Netherlands), has around 500 participants from 43 different countries, almost 30,000 visitors and 24,000 square metres of exhibition space.

It has proved to be the platform for international trade in fruit and vegetables, offering a worldwide selection of fresh and processed foods, technical equipment and a range of service facilities. AGF Totaal has become the ultimate international meeting point every two years, in regards to both supply and demand.

The notion that healthy and convenient, fresh and appetising, rapidly prepared and varied are the factors determining today's consumers' product selection is vital to success. AGF Totaal displayed a wide range of new and innovative methods for food preparation and presentation and provided participants with valuable networking opportunities.

Some of the packing and ready meals on display at AGF Totaal are pictured below:

Processed, par-cooked potato noisettes.

Potatoes packed pillow pack style..

Sealed punnet packs.

Some of the elaborate displays used at AGF Totaal:

Above and below: Colourful vegetable displays.

The largest display – nuts and dried fruits.

A potato variety display.

Seed Potato

Greenvale AP Seed Operations - Burrelton

Day 8 (10/09/2003)

Background

Greenvale AP is a fully integrated potato supply company as they work from seed development right through to processing potatoes. Greenvale AP, as a whole, handles 700,000 tonnes of potatoes annually: this figure can be broken down into:

Pre-pack	165,000 tonnes
Processing & Wholesale	391,000 tonnes
De-hydration	80,000 tonnes
Seed	44,000 tonnes (of which, organic seed only amounts to 800 tonnes)
Organic	20,000 tonnes

The total seed tonnage of 44,000 can also be broken down into:

Retail (growers growing for Greenvale AP)	27,000
Wholesale (non-Greenvale AP growers)	7,000
Export	7,000 (mainly North Africa and Asia)
Export/Buy back	3,000 (Israel, Egypt, Spain, Italy and France)

Greenvale AP seed production is spread across the UK so as to utilise varying climates and to secure supplies. They have a high intensity seed area in the East, the Wisbech and March area and they also produce high-grade seed in Northern Scotland, which they push down to the South and to Northern England. English seed is available earlier than Scottish seed but has less vigour.

Quality assurance is very important to Greenvale AP and they achieve this with branding. Select and Assured (*detailed right and page 16*) are two Greenvale AP brands that both exceed Certification standards, of which Select ensures the highest quality seed with Assured close behind. Assured is the brand Greenvale AP uses to supply growers who are contract to them. That way they know the exact quality of the potatoes they will receive. Seed prices range from £180 to £240 per tonne with a £30 to £50 premium for Select grade.

Branded Seed

SELECT

- Grown to stringent Greenvale AP production protocols
- Procured from growers producing 100% for Greenvale AP
- Produced on long rotation sites
- Procured and sold to tighter disease tolerances than normal industry standards
- Offered on a replantable area basis
- "Just in time deliveries" can be arranged

ASSURED PLUS

- Procured and sold to tighter disease tolerances than normal industry standards
- Along with the benefits of Assured Seed

Tolerances allowed for Select & Assured Plus:

	Greenvale AP	Industry Standard
Damage	1%	2%
Size	1%	2%
Rots (inc. frost)	0.5%	1%
Common Scab (25% surface area)	2%	4%
Powdery Scab (10% surface area)	0.5%	3%
Skin Spot (10% surface area)	1%	2%
Black Scurf (10% surface area)	1%	3%
Select seed for specific markets, i.e. salad production, can be sold at tighter tolerances than shown above.		

Select and Assured as compared with Industry Standards.

Well-graded seed is sold on a "replantable hectare" basis which takes into consideration both tuber number and tuber weight.

Sound agronomic practices are also important. Greenvale AP encourages all growers to conduct routine soil tests and also provides growers with written fertiliser program recommendations.

Greenvale AP only exports seed of their own proprietary varieties because public variety trade is too competitive.

Outcome

Greenvale AP has been very successful with their breeding program and in particular with the following varieties:

Claret (red skin, cream flesh, resistant to tuber blight, common scab and virus Y)

Sebastian (parti coloured, white flesh, very low dry matter, Resistant PCN Ro)

Lady Balfour (parti coloured, cream flesh, resistant to tuber blight, PCN Ro & pallida, virus Y)

Eve Balfour (white skin, cream flesh, high dm, low sugars, tuber blight resistant, PCN pallida, virus Y)

Vale Sovereign (ICM friendly variety, low input-high output, parti coloured, cream flesh)

Currently, Vale Emerald (salad type) and Vale Everest (processing type) are still in the breeding stages.

Burrelton's large storage area – there are 6 storage rooms branching off of this central loading bay.

Smillie (Caithness) – Gordon Smillie

Day 8 (10/09/2003)

Background

Gordon Smillie.

Until 1978 the British Government conducted all potato breeding in the UK. In 1984 Jack Dunnett and 3 other growers (ex government breeders) started Caithness PB and the released Nadine. Nadine is the 3rd most popular potato variety and has supported Caithness PB ever since its release.

Caithness currently farms 1500 acres and has varieties such as Winston, Kestrel and Harmony, which is in the process of replacing Nadine. They are currently looking for a red variety to use for export, as the red market in Australia is 20% as opposed to 10% in the UK.

Even though their exports to North Africa, Morocco and Israel have increased, growth is a concern as there has been a decrease in planting from 164,000 to 120,000 acres.

Gordon explained the importance of having the supermarkets on side when attempting to market a new product or variety. If they don't support you bringing in a new variety or product they won't push it to the consumers and it won't take off.

An important point for the Australian Industry is to recognise they rely heavily on Nadine and this could cause problems at some stage. The Australian Industry should investigate the opportunity to introduce Harmony to the Australian market.

Elders are the agent for Caithness in Australia (Gary O'Neill, details in participant contacts).

Agrico

Day 8 (10/09/2003)

Background

Agrico bv is a Dutch farmers' cooperative of over 2,000 farmers and one of the largest independent potato marketing companies in the world. Agrico bv owns the Plant Variety Rights (PVR) to more than 100 varieties currently in demand by fresh market and process potato growers. They produce in excess of 1,000,000 tonnes of seed and ware potatoes annually.

The UK office was established in 1980, to facilitate the increasing importation of Dutch seed potatoes, and produces 65,000 tonnes per year. They are endeavouring to cater for the latest increasing market – healthy fast food. People want the convenience and enjoyment of fast food to suit their busy lifestyles but they are more conscious of their health and their weight.

In 1998 Agrico bv bought Nickerson's seed potato business and evolved into Agrico Ltd. They made this investment to allow them to meet the rising demand, from ware growers and packers, for high quality agronomy led products and services. Agrico Ltd now supplies approximately 25% of the British seed potato market.

Peter Lyons inspecting a ???

An Agrico trial site.

Agrico provides:

Minitubers (peat based and hydroponic)

Varietal development of in-house varieties

1st earlies: Premiere, Alcmaria, Riviera

2nd earlies: Wilja, Estima, Marfona, Cosmos, Kondor, Konsul

Maincrop: Romano, Santem, Fianna, Picasso, Agria, Markies

Seed production

All in–house varieties

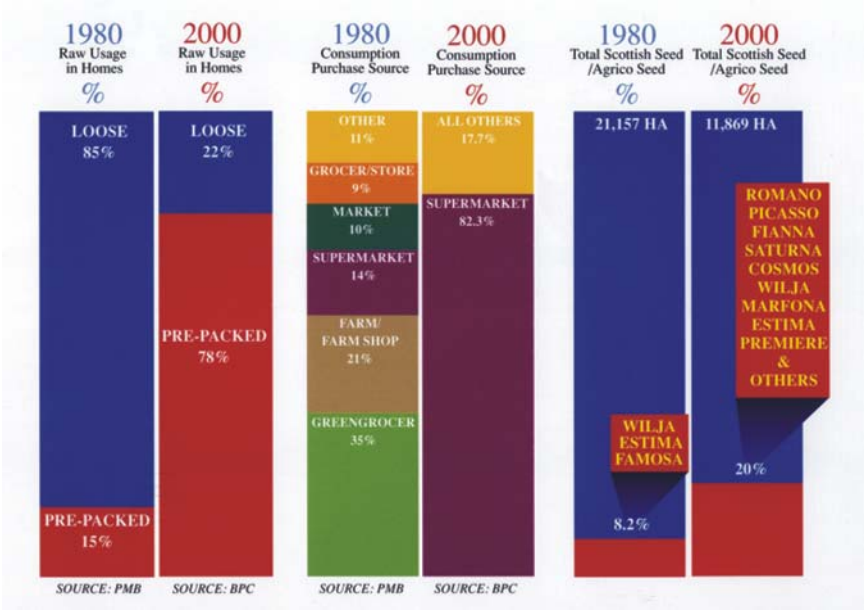
32 free market varieties are supplied for the UK and for export, including:
Maris Piper, King Edward, Maris Peer, Desiree, Hermes, Charlotte and Nicola.

Agrico also recognised organics as an increasing sector of the potato industry. As a result, Bioselect (a subsidiary of Agrico) was formed and is committed to organic principals and developing the organic market. Bioselect now holds up to 60% of the organic seed supply in the UK.

The UK market has experienced changing trends in consumption and purchasing and Agrico has monitored and endeavoured to respond to these trends. The graphs (right) detail the changes in usage, purchase source and Agrico seed versus Scottish seed.

Agrico are also very aware of the need to meet the demand for cleaner skin finish, which requires less incidence of skin-blemishing disease. Seedx is a new seed quality standard developed by Agrico to provide higher quality seed potatoes.

The table at right outlines the qualities of Seedx in comparison to standard seed. Seedx also has higher specifications than those necessary for MAFF and SERAD certification.



	Seed[X]	STANDARD
Skin Spot	1% on 1/8 tuber	2% on 1/8 tuber
Black Scurf	1.5% on 1/8 tuber	3% on 1/8 tuber
Common Scab	2% on 1/4 tuber	4% on 1/4 tuber
Under / Over size	1% on sample	2% on sample
External blemishes	1% on sample	2% on sample
Powdery Scab	1% on 1/8 tuber	3% on 1/8 tuber

Seed [X] fulfills all the supermarket and potato industry criteria for agronomy traceability and gets your ware crop into the high earning categories of the market.

Fresh Potato

Greenvale AP – Floods Ferry

Day 4 (06/09/2003)

Background

Greenvale AP packs potatoes for retailers and the catering and food service industries. The Floods Ferry site packs 1500 tonnes per week. It packs 1,200-1300 tonnes of conventional potatoes for TESCO per week and is the sole supplier of organic potatoes to TESCO. It also packs about 100 tonnes per week for ALDI.

Trevor Dear, General Manager, Floods Ferry.

Pillow packed potatoes in smaller weights (i.e. 500g, 1kg and 2kg) are popular as consumers are buying less and shopping more frequently. They use a P+ perforated film as it increases shelf life by two days, and they also monitor shelf life in a simulated storage area. Their approach to this is novel, as they pass on information to the supermarkets to alert them of impending breakdown of product rather than using shelf life tests to defend bad reports they receive back. This is a proactive approach to product management.

A lot of the business is in baby potatoes, they supply 75% of TESCO's baby potatoes. In 1994 they progressed to packing baby potatoes into a punnet. Previously, they wrapped the punnet, stuck a label on and printed on the label. They have since automated the process and made a more presentable pack. They now form the punnet on site, drop the product in and then seal with a pre-printed clear film top lid.

They have 250 staff and work 20 hours per day 7 days per week, 85% of staff are employed and 15% are agency staff. There are two problems in the UK with employing staff, one is getting people who want to work and two is finding the people around the area – the fens has a lot of non-skilled work, which has caused a problem and thus the non-skilled rate of pay has gone up. They have provided good working conditions, free transport and trendy working clothing and as a result have secured a stable workforce.

Outcome

As the sole supplier of organic potatoes to Tesco, they are processing about 120 tonne of organic potatoes per week, which equates to 6-7000 tonnes per year. When they had the foot and mouth disease 3 years ago, they were doing about 14,000 tonnes per year.

Punnets formed on-site and filled with potatoes along the one line.

This year they launched a microwave freeform punnet, which they pack with small microwavable potatoes. Consumers only need to pierce the seal, microwave for 8 minutes, let it stand a minute and then eat.

The microwave punnet line cost £250,000 to set up and was paid for by production within 9 months. It is isolated in a high health sector of the packing plant.

They use a different washer for microwave punnet potatoes, as they are being bought off the shelf to cook and eat straight from the punnet rather than being washed and peeled before being cooked in the home. They need to be sure that the product they are selling is microbiologically safe.

The punnet holds 500 grams and they use two varieties, Maris Peer and Charlotte, as they look the best. They have also introduced a rosette of butter to the punnet pack, which can also have herbs and spices added. When microwaved in the punnet the butter melts around the potatoes, after standing for 1 min they are tipped into a dish and the butter spreads over the potatoes. They did very well and flavours and spices are the next step.

Greenvale AP are also the sole provider of Jersey Royal new-potatoes to Tesco. The Jersey potato is a premium potato for 2 months of the year, between May and June. They are a niche and Tesco have the market brand name Jersey Potatoes. They sell them as a new potato in very large quantities making it a very busy time. This year they also did a microwave punnet with fresh Jersey potatoes with a rosette of butter, which sold really well.

Labels for the microwaveable punnets

The next step is to do a jacket potato; they worked with Southern Choice (South Australia) on a jacket potato in a box. When microwaved for 5 minutes the skins went brown. This gave the appearance of a crispy brown skin but they weren't crispy. They did not continue with this technology, as it did not meet their market needs.

Their research showed that glucose and starch coating would make the skin colour brown, but when you cut into the skin there is no difference to a standard microwaved jacket potato. The key is to produce a jacket potato that can be microwaved fresh and results in crispy skin.

Currently, in Scotland they are selling bakers on trays that are then wrapped in film. Floods Ferry is supplying a processor with accurately sized potatoes (Accupack machine) so they can scoop out some flesh and add a filling – pre-prepared flavoured baked potato that can be microwaved or baked.


Black plastic sheeting about to be moulded into punnets and then filled with potatoes.

The Floods Ferry plant also supplies Simply Fresh Foods (based in Manchester) who do all the precooked and prepared potatoes for TESCO. They prepare and par-cook potatoes in packs mixed with herbs and oil that can then be microwaved, boiled or baked.

Simply Fresh Foods add value to the potatoes that Floods Ferry supply.

Simply Fresh Foods supply a 360gm punnet of potatoes that has herbs and oil added and is pre-cooked that retails for £1.29. While Floods Ferry supply a 500 gram punnet of fresh potatoes without flavours or oil added that retails for £0.99.

They supply Tesco, Morrisons and Co-op with prepared/precooked and flavoured new potatoes, mini-jacket potatoes, ready to roast and wedges with a dip. Other products they produce are stir-fry, prepared vegetables, and rice and noodles meals.

The work ethic at Floods Ferry.

Greenvale AP is also considering the different ethnic interests of the UK consumer market by investigating the opportunity to introduce spicy potatoes, Bombay potatoes and other flavoured potato meals.

Greenvale AP Packing Plant – Craigswalls

Day 7 (09/09/2003)

Background

The Craigswall Plant was independently owned before becoming part of the Greenvale AP organisation. The Black family originally owned it and sold it in the mid 90s, Venture Capitalists then sold it to Greenvale AP in 2000.

The Craigswalls packing line.

Greenvale AP has packing plants in Craigswall, near Duns on the Scottish Border (supplying Tesco and Sainsbury), Floods Ferry, Cambridgeshire and at Market Drayton in Shropshire (Tesco dedicated). Craigswall services all of Scotland and parts of England.

Greenvale AP and MBM are the largest pack houses nationally in the UK. Greenvale pack 700,000 tonnes per annum and MBM pack 900,000 tonnes per year.

Outcomes

Craigswall, which packs 55,000 tonnes per year, is attempting to add value to the loads they purchase by utilising second grade potatoes for processing i.e. diced, peeled, mashed etc.

The Craigswalls packing line.

Greenvale AP, as a whole, has decided to venture outside of just packing. There has been a huge swing towards baby and baking potatoes in the last 5 years and they need to be able to satisfy these consumer demands. They are now packing roasting, baking and salad potatoes and have also expanded to include a dehydration facility providing flake.

The Australian Industry needs to investigate the baby potato market as a full production commitment rather than a subsidiary line.

Greenvale AP has predicted there will be a decline in the number of UK potato growers. Recently their northern grower base dropped from 70 to 30, which covers all of Scotland and Northern England.

Two pack of jumbo bakers.

Punnet packed baby potatoes for salads or meals, can be microwaved..

Solanum

Day 3 (05/09/2003)

Background

Solanum Ltd came into existence in April 2000 when Russell Burgess Potato merged with Sutton Bridge Limited.

Russell Burgess Potato was founded (by Russell Burgess) in the 1940s to allow growers in the Cambridgeshire fens to cooperatively market their own fresh produce. Sutton Bridge Limited was part of the Potato Marketing Board before being acquired in the mid 1990's by new shareholders, and like Russell Burgess had a wealth of experience in the world of potatoes.

Solanum is now one of the UK's premier suppliers of potatoes, to both the retail and processing industries, with a reputation gained by providing quality and value for more than 60 years. Solanum guarantees customers the freshest produce, with a full history of every crop from seed to shelf.

The merger allowed Solanum to enjoy economies of scale as well as become more customer-focused, allowing greater investment in research and development.

Simon Bowen, Group Agronomy Manager, Solanum

Solanum has two well-equipped potato packing operations - one at Yaxley near Peterborough and the other at Sutton Bridge in Lincolnshire. Both sites boast several large temperature controlled stores with spacious factories able to cope with any size or weight denomination. The company's technology creates conditions that provide a high level of quality and freshness at the point of purchase.

Solanum is always seeking to develop new varieties of potatoes, which will increase the yield for the grower and increase the return per acre whilst maintaining a competitive price for the consumer. However, they will not endorse any new varieties without first carrying out proper trials and evaluations. Solanum is also continuously researching and developing new and better systems of potato handling, such as improved ventilation and refrigeration, sprout control and importantly, disease protection.

Solanum has an on-going research and development program into disease protection, which is becoming increasingly important. Solanum agronomists and technologists provide support to growers in the form of leading advice on crop management.

Outcome

Solanum pack primarily for Waitrose Supermarkets and have state of the art grading and packaging machinery. The stand out feature of their operation was the use of pillow packaging, a very attractive and modern method of presenting potatoes. The pillow packs are cellophane and are printed with valuable information regarding variety of potato, best use, cooking method and origin. At Solanum they have a system that allows them to trace the origin of a batch of potatoes via the code printed on the pack, including day of harvest, grower and location etc.

Pillow packed baby potatoes for Waitrose. Variety and origin details are near the barcode.

Supermarkets are becoming more powerful in allowing and prohibiting the use of pesticides. Waitrose dictates the pesticides growers can use as they promote themselves as having growers who use less pesticides and are environmentally friendly. Solanum is working with the supermarkets to educate them on the necessity of some pesticides. They are also working with the growers to manage issues before they travel down the line to processors and retailers.

Supermarkets, because of the fight for market share, seek differentiation and demand specifically grown crops that will set them apart from their competitors. This causes problems when they do not purchase the entire crop and growers are left to sell it elsewhere.

They have also developed a use for small potatoes 30mm and under, they are pillow packing them and marketing them as salad potatoes. This is a process that could be easily adopted for the Australian market; salads are synonymous with a BBQ in the Australian summer. Currently potatoes of this size attract inadequate remuneration in Australia.

Solanum has strict quality controls measures and they will reject potatoes not up to standard.

Shelf life testing is conducted in a specially designed room. The room has been designed and equipped to resemble a supermarket shelf environment, it is temperature and light controlled. Samples of the finished product are stored in these conditions and observed for changes in quality.

The quality assurance system is very important to the running of the plant. Solanum employs Hazard Analysis and Critical Control Points (HACCP) food safety standard system.


The simulated supermarket shelf used to test the life of produce at Solanum.

Processing

Cheviot Foods

Day 6 (08/09/2003)

Background

The factory opened in 1975 under the ownership of Jus Rol Ltd, in 1998 the Prize Food Group purchased the business and the name changed to Cheviot Foods Ltd.

Cheviot Foods is the leading UK producer of own-label frozen potato products (excluding French-fries). They supply most of the supermarkets in the UK and have a good track record regarding innovation.

Their turnover is approximately £200 million per year, with 64% branded and 36% own-label product. The products showing significant growth are roast potatoes (major growth), wedges and waffles, however the rate of growth is slowing.

Part of the Cheviot Foods range including, potato waffles, roast potatoes and potato croquettes.

With roast potatoes it was necessary to shake off consumer attitude that roast potatoes were only for eating with red meat and vegetables at weekends. The product was promoted as being suitable for eating with anything (chicken, fish, with salad etc) at anytime. Cheviot Foods has recently included roast parsnip in their product range because they roast in exactly the same way as potatoes.

Products that are declining in popularity are fritters (-21%), Alphabites (-5%) and oven-ready fries (-4%).

Cheviot Foods have the following share of the UK market - 95% of roast potatoes, 73% of croquettes, 36% of waffles and 39% of roast parsnips.

Supermarket share of frozen potato market

Supermarket	Brand share of UK frozen potato market	Business strategy
Tesco	25.7%	Every Day Low Price (matched to ASDA**)
J Sainsbury	14.7%	High price and quality
Safeway	8.5%	High/Low strategy
Morrison	6.2%	EDLP
ASDA	3.5%	EDLP
Co-op	3.1%	Convenience

***ASDA work on a 30% margin and Tesco require 43% but expect to sell at the same price point. The supplier has to absorb the difference.

The factory employs 300 staff and has 5 production lines. One is dedicated to croquettes, another to mash products, 2 to roasts and 2 are multipurpose. The factory cost £7.2 million to set up and processes 36,000 tonnes of potatoes. The main varieties used are King Edward, Estima and Maris Piper.

£0.5 million is invested in R&D each year.

Outcome

The processed potato market now accounts for 50% of the market in UK and Cheviot are continually looking at developing new potato products to maintain dominance in this market. They focus on developing quality products that are well presented and appealing to a broad market.

The processed products based upon potato mash would have considerable potential in Australia and may also have export potential as a value–added product. However, considerable capital expenditure is required to establish a processing factory.

Popular roasting potatoes, marketed to be eaten with meals other than the weekend roast.

Cheviot Foods conduct extensive market research to allow them to understand the changing buying patterns of the British consumer. Likewise the Australian Potato Industry needs to investigate the opportunities for diversification in product range to cater for the changing needs and wants of Australian consumers. Consumers have less time to prepare meals and want products that are quick and easy to prepare while maintaining a high level of taste and visual appeal.

Frozen, par-cooked roast potatoes packaged in 500gm bags are easy to store, easy to prepare and a favourite with a majority of the population. Simplot have recently released frozen roast potatoes on the Australian market and if the UK market is a gauge then this product will have further growth potential if promoted for everyday use.

PAS Grantham

Day 1 (03/09/2003)

Background

PAS Grantham is a British subsidiary of McCains Foods (GB) Ltd and was acquired in 1969. Together, they hold 60% of the 500-600 tonne per year UK French Fry market; McCain holds 40-50% and PAS holds 10%. PAS asserts that its smaller size allows it to be much more flexible than the larger scale processors and sees this as a significant opportunity for them.

To avoid the risks associated with potato storage, PAS are not involved with the cool storage, handling or logistics of the harvested product; they are only interested in processing.

PAS is the leading manufacturer of private label French fries and although it is a subsidiary of McCains it also supplies Tesco, Marks and Spencer and McDonalds. Thus it supplies private labels that are competing with the McCains label. Supplying McCains, the number one private label in Europe, is a difficult task, as they demand a high quality product at a very low price. PAS Grantham also introduced the Cater pack, supplying processed French fries to fish & chip shops, cafes and restaurants.

PAS is a large scale, automated processing facility that uses steam peeling machinery and defect detection machinery (detects and removes defects) to produce:

- French fries
- Lattice
- Microchip
- Wedges

Maris Piper is the number one (1) variety in the UK for oven French fries and accounted for 28% of potato plantings in 2003. Desiree was previously the variety primarily grown for the French fry (Oven Fry) market but only a small quantity is now used. One problem with French fry processing is potatoes with very high solids. PAS were having a problem with solids at a level of 23-24, which resulted in a raw undercooked texture. Ideally solids should be at 21-22. PAS have standard fixed contracts or maxi/mini and incentive contracts based on product with low sugars, low defects and good solids. PAS only use sunflower oil, as it is high in polyunsaturated fat, they never use hydrogenated oils.

Outcome

New Product Development (NPD) is the future because people want more than just fries now. Consumers are also becoming more health conscious and low fat is now a major issue for chips in the UK.

Retailers (especially the Supermarkets) drive NPD in the UK as consumers ask for particular products to be supplied, they in turn approach the manufacturer to develop a new product. Retailers also approach the manufacturer to develop new products that will allow them to be different to the competition. However the Supermarkets do not pay for NPD, they expect this to be done by the supplier.

It is a rare occasion when a completely new product is developed; it is more often that a new product is a variation of an existing product (i.e. coated products, new flavourings). When developing a 'new' product expected sales volume and price are important considerations, as is the success rate – 90% of new products fail in the market place.

The specification for low fat chips requires that they should have less than 5% fat after cooking, PAS managed to get below 4%. Consideration had to be given to the fact that potatoes release moisture during cooking, thus relatively increasing fat, calorie and protein levels. To obtain this low level of fat content the chips must have a fat content less than or equal to 2.7% of fat per serve. To increase flavour higher quality potatoes are used rather than increasing fat.

Greenvale AP Plc Dehydration Plant

Day 3 (Friday 05/09/2003)

Background

Robert Ash.

Greenvale AP has a purpose built dehydration plant in Wisbech, Cambridgeshire with a capacity to make 20,000 tonnes of dehydrated potato flake per year.

Converting potatoes into dehydrated potato flakes involves many stages and detailed control of the operating parameters of all the equipment involved in the production process.

The right quality raw material and ingredients combined with process control will ensure excellent quality finished product. Yield ratio of raw potatoes to flakes is approximately 6:1 and re-hydration ratio of potato flakes to mash is 1:5.

The product has wide application in the snack food and processed food industry to produce fabricated potato chips (Pringles), snack pellets, extruded snacks, battered breaded products, meat toppings, etc.

Potato flakes can be easily reconstituted with cold water, which has lead to its popularity as an ingredient. This product has very good demand and wide application in ready meal production, snack production, fish cakes, pies and sauces, retail and catering packs and bakeries, just to name a few.

Testing for solids and sugar levels.

Greenvale AP supplies flake to the food and snack industries in the UK, Europe and USA, it has an exclusive supply relationship with Proctor & Gamble Ltd who produce "Pringles". Now with accreditation to the Soil Association, Greenvale AP can produce organic dehydrated potato flake, to be included in such products as processed baby foods.

Outcome

Potatoes are delivered onsite in wooden storage bins and there is potential for contamination from the wooden boxes. As a result they are installing 10, 50 tonne bins – drivers will bulk deliver and unload to these bins, the potatoes will then go through a cleaning and grading system before being put into the bins for short-term storage. They have a 60, 000 tonne storing facility in East Links, 40,000 tonnes near Floods Ferry and a 30,000 tonne facility locally in Wisbech.

The factory is a dedicated flake plant and was originally set up as a 2-drum facility, it is now a 4-drum facility. The company has never made money but after 18 months with Robert Ash in charge a profit was made in April 2003.

The delivery and storage area which is about to be upgraded.

The potatoes go through a process of being:

1. Washed, steam-peeled by high-pressure peeler that also scrubs and polishes
2. Sliced to 15 millimetres
3. Flumed into 2 cookers
4. Auger-fed through the cookers
5. Cooked for approx 24 minutes at atmospheric pressure, via steam directed onto the product
6. Mashed and then auger-fed over the 4 heated and rotating drums
7. Applied to the drum by applicator rollers (approx 1/1000th of an inch at a time)
8. Dehydrated - the top roller applies mash and dehydrates that to 1/1000th of an inch
9. Reapplied – the steam turns off and another 1/1000th of an inch is applied

   This continues with the aim of achieving a sheet of around about 7/1000th of an inch
10. Pulverised to powder as the dried sheet detaches from the roller
11. Air-transported to a Cyclonic change where the air is taken away from the product
12. Dropped through mills directly into a Silo, or via the silo to bulk transporter

The high-pressure steam peelers.

New season potatoes are much more difficult to convert into flake than older stored crop because they are still salady, very waxy and the starch isn't as free.

The sheet of flake as it comes off the roller.

The capacity of the line is 2 tonne of flake per hour out which equates to 12 tonne per hour of potatoes in, a ratio of 6:1.

They have a simple shift system with 8 people per shift, in the plant, including a supervisor. There are 4 teams, each working 12 hours. There are 2 shifts per 24 hours, thus the teams are able to rotate days and nights. They have 4 shifts with 8 people per shift, totaling 32 people on the line and they manage it throughout the year. On a good day they are able to produce 25 tonne of dried potato flake a shift.

The Mills are in a separate controlled-atmosphere room. Product can be dropped into a silo for storage or into a transporter for immediate delivery.

Their input demand for potatoes is 96,000 tonnes per year and is split into 30% own grown, 30% contracted to growers and the balance is made up of free market and rejects from their own fresh potato grading operations.

They pay approx £30 per tonne for the rejects. They can take potatoes that have brushing, scab and even rot as the washing peeling process gets rid of these problems.

They are dedicated to one customer - Proctor and Gamble in Belgium, who uses the entire flake supply to produce Pringles. They have approved potato varieties for Proctor and Gamble however when it becomes tight they will accept anything. They aim for 21-22% dry matter and when the solids get to above 24-25 %they can't convert it to flake.

The specific flake they produce is called low leak, because the starch hasn't been leaked out. If they did go a step further by blanching, cooling and bleaching there would be additional loss of starch and reduction in sugars. This would produce a fluffier product, which could be used as a topping for ready meals or to make reconstituted potato. However, this process is much more expensive.

Waste is also utilised at this plant, waste products include peel, waste mash including peel ring (the thicker edges of the dried sheet taken off the drum), waste collected under the drums and fines taken from the air. Fines taken out are sold to a starch company and other waste is sold as cattle feed.

The laboratory, where all batches are tested for quality assurance.

Samples of flake, ready for quality assurance testing.

H&H Engineering – Pluen Lagendijk Dinner Talk

Day 11 (Sunday 14/09/2003)

Background

Pluen has 26+ years experience in the food processing and machinery industry. He worked for 18 years as Plant Director at a French Fry/Flake Factory and has been working in the engineering field with H&H Engineering (a Division of BMA Nederland BV) for eight years.

He discussed:

- Known industries in Australia
    - French Fries (overcapacity worldwide)
    - Chips (dominated by Frito-Lay)
    - Flakes (increasing demand)
    - Starch (East Asia)
- New possibilities for Australia (see below)
- Frozen potato specialties (see below)
- Potato granules (see below)

New possibilities for Australia

- Washed potatoes retail (smaller sizes – 20-30mm, smaller and different packaging etc)
- Peeled/Pre-cooked potato products (smaller sizes, microwaveable, oven-bake, fry etc)
- Ready meal industry (prepared meals that only need heating - omelettes, bakes, quiche etc)
- Frozen potato specialties (pom noisettes, croquettes, rostis, patties, pancakes etc)

Frozen potato specialties

There is the opportunity for factories in the Asia Pacific to accommodate the increasing demand for frozen potato products. The basic material required to produce frozen specialty products is potato mash, which can come from whole potatoes or flakes. Additional ingredients include: seasonings, other vegetables, cheese, meats etc).

The mash manufacturing process involves:

- Wash/de-stone/peel/de-skin
- Cut/sort
- Blanch/cool/cook
- Mash/Cool

Specialty product manufacturing involves:

- Mash
- Add Ingredients
- Mix/form
- Fry
- Freeze

The capacity of a frozen specialty potato product line is 2-3 tonnes per hour with an investment of $AUD 3-6 million necessary.

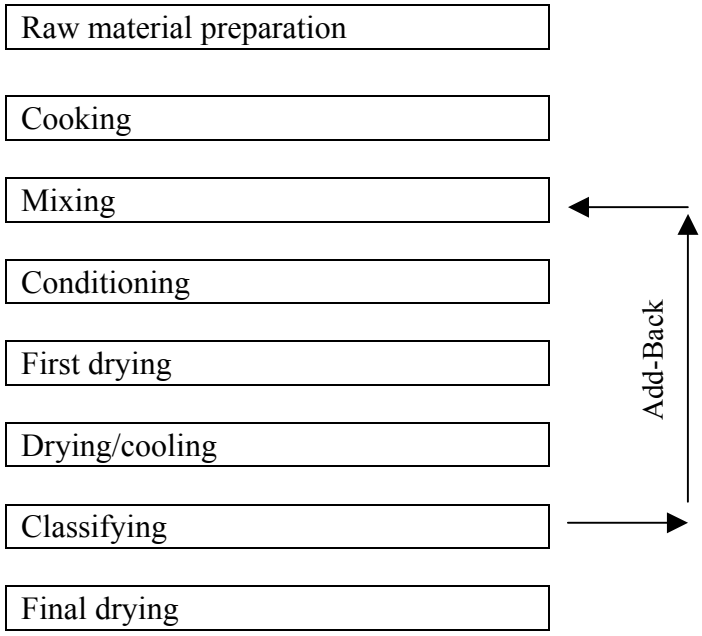
Potato Granules

Potato granules are based on single intact potato cells, they produce a much fluffier product than flake and can be applied as a topping. Granules can also be used to make high quality reconstituted potato as it is much whiter, fluffier and presents better.

Granules, due to their superior quality, attract approximately 1200 Euro per kilogram, which is around 10-20% more than flake. It is also very compact and easily transported.

The process used to produce granules involves mixing cooked potatoes with dried potato granules – an add-back process. The granules are dried in several steps by a flash dryer and no grinding takes place.

The steps of a Potato Granule line are:



During the classification process oversized product is either added back to the process or taken out as waste. The sizing scale below explains how waste is determined:

>1 mm	waste
>0.63 mm	add back or waste
<0.63 mm	add back
<200 μm	final product

Retail possibilities for potato granules include:

- Mashed potatoes
- Complete mashed potatoes (mixtures or agglomerates)
- Ingredient item for soups, croquettes, dumplings and French Fries

Industrial possibilities for potato granules include:

- Complete mashed potatoes (catering – fresh, chilled or frozen)
- Ingredient item for:
    - soups (ingredient)
    - croquettes (coating and filling)
    - dumplings (coating and fillings)
    - French Fries (coating and processed chips)
    - Pet food (ingredient)
    - Bakery products (toppings and fillings)
    - Snack Products (extruded, pellets, fabricated chips etc)

A Potato Granule line has the capacity to process 150,000 – 200,000 tonnes per year of raw material. One (1) part potato mash to seven (7) parts powder is used to reduce moisture levels. Thus, granule production requires eight (8) times the amount of raw product to produce the final product and granules have to be bought in during the start-up phase. An investment of $AUD12-15 million is needed to establish a potato granule production line.

Research

Sutton Bridge Experimental Unit

Day 3 (Friday 05/09/2003)

Background

The British Potato Council (BPC) funds a large portion of potato research carried out in the UK. Research is commissioned according to the priorities identified in the BPC's research strategy.

Since 1964, SBEU has been the major provider of storage R&D to the potato industry. SBEU successfully competes with other research establishments to secure BPC contracts for research into all aspects of potato storage and handling, and other appropriate areas.

Current areas of research:

- Agronomy & storage for the processing market
- Agronomy & storage for the fresh market
- Independent variety trials storage
- Optimising CIPC application and evaluating its environmental implications
- Detrimental effects of CIPC on fry colour
- Advances in store management systems & improving uptake by industry
- Effects of condensation on storage diseases
- Dry rot survey

A key aim at SBEU is to integrate storage work into the whole spectrum of science. This would support the potato industry and broaden the base of funding; ensuring SBEU can continue to serve the industry in a cost-effective way.

Storage research

New varieties and new storage techniques allow the potato processing industry to satisfy customer demands and create new markets. The SBEU team also conducts contracted confidential research into optimising the storage regime for specific new varieties or products, extending factory operations between crops or reducing dependence on storage chemicals.

Monty Spencer (left) and Michael Tyler (right) with Ajay Jina, of SBEU.

In regards to fry colour, SBEU has the latest colour quality measuring equipment, giving objective results, which can be easily related to commercial processing operations. Quality assessments can be carried out according to in-house protocols or those of the client.

Storage for pre-packing

Keeping ahead of the competition is an essential part of any marketing strategy for leading pre-packers. Disease control work is also an area of expertise and work can extend to the evaluation of new varieties, all aspects of storage quality plus shelf life and packaging trials.

Outcome

Growers pay a levy to SBEU and every year they get a certain amount of free consultancy time, initial consultations are free and then any subsequent contact is charged. SBEU prefers to go out to growers with reported disease problems as they get more of an idea seeing it first hand. However, some growers bring samples in. If the SBEU team have trouble finding the problem they also work collaboratively with the Central Science Laboratory (CSL).

One of the labs at SBEU.

Phytophthora (Late Blight) is a major problem for the UK potato industry. In the UK the Phytophthora population has built up resistance to Metalaxil so they only use Ridomil and at the beginning of the season, any later and it just won't be effective. As a result they do not use it in sufficient amounts to have any effect on Phytophthora.

The SBEU team believes there are a number of issues to consider with any of the rots (dry rot, knobbly rot, gangarene etc.):

- Ensure the skins are set properly before lifting
- Avoid damaging
- Cure when the tubers are hot
- Storage

If curing is performed correctly, rotting can usually be contained, as a result British control measures are focused on the handling and curing.

Erwinia's are now a huge problem in Britain and as yet there is no cure. They cause soft rots and black leg, which is a huge seed-borne issue in Britain. ELISA testing is used to identify and count the numbers of Erwinia. This test can detect three varieties of Erwinia and involves a fluorescent die with an antibody specific to the variety attached. The biggest problem is Erwinia carotovora sub-species atroseptica, which causes black leg but they are now experiencing a problem with a different strain of Erwinia, not covered by the fluorescent die. It does not necessarily cause black leg but it does cause a wilt and a really bad rot at the end of the season. This strain is a huge problem for the pre-pack industry. These are all seed-borne issues, which tend to be brought in by Dutch seed.

A lot of the seed suppliers are now doing a black leg risk assessment test based on the numbers of Erwinia found on the surface of the tubers. They categorise risk as follows:

- >300 organisms per mg of tuber skin extract is low risk
- 300 – 1000 per mg is an intermediate risk
- <1000 per mg is a high risk

Testing is generally done prior to planting, but some growers question this practice because testing seed potatoes just after harvest or just before planting can give different results. There is benefit in getting seed tested before you plant because in a very wet season you could be exposed to Erwinia risk and have significant rots at the end season.

Controlling sprouting in storage is also a big problem in the UK at present. They use maleic hydrozide and CIPC. On the continent CIPC is used at store loading as a liquid or as a dust onto potatoes as they go into store. In the UK they cannot use this method, they must apply the CIPC as a

fog once the crop is in store and has been cured. Fogging is not a very precise science and distribution in the store is relatively uneven.

The most popular type of store in the UK is a box store with overhead ventilation, so there is no ducting within the store that actually provides a means of getting CIPC to the potatoes. They just fill the store with the fog and it diffuses around with very uneven distribution, which causes problems.

The SBEU team is also looking at the processing quality consequences of CIPC application. CIPC fog is actually generated by injecting petrol and chemical into a combustion chamber and burning it. When petrol is burned contamination with a range of other compounds occurs and one of the compounds is ethylene. Ethylene has a detrimental effect by raising sugar content, which in turn has an effect on processing quality. SBEU have experienced significant deterioration in fry colour following CIPC application.

SBEU conducted an experiment that compared the effect of CIPC with just the exhaust gases from the fogger. The results demonstrated that the combustion products cause the damage. As a result they have conducted further experiments to confirm that ethylene is the problem.

They are attempting to control fry colour with two methods:

- Using a fuel other than petrol because the fuel determines the yield of ethylene. Methanol has been found to be beneficial in terms of fry colour, but it is expensive.
- Application rates and times have also been found to be important. The US approach is to apply all the CIPC in the beginning, the Dutch approach is to put a little on often and the British approach is somewhere in the middle. Results showed that with a single application at the beginning of a 4-month period of storage, the fry colour increased with time of storage. If they conducted 4 applications at a ¼ of the rate, at one-month intervals, fry colour was stable over a longer period. Thus, they suggest putting more CIPC on, on fewer occasions rather than less, more often.

What tends to happen with CIPC, if you apply it early in the storage season, is that it has relatively little impact on the process, as the season progresses applications of CIPC tend to do much more damage in terms of fry colour.

Ethylene blocking is being investigated, using a compound that has just received registration for apples. On potatoes it has been used to make crops insensitive to the ethylene from CIPC applications. CIPC is to be covered by an MRL in the UK which will restrict its use. Chemical companies suggest the MRL should be set at 10 ppm, which would be workable, but MRL legislation is Europe-wide and there are some countries in Europe already working at 5 ppm.

Cambridge University

Day 3 (Friday 05/09/2003)

Background

Dr Eric Allen.

The team at the farm originates from a research team working on physiological age of potatoes, initialy based in Wales.

CUF pays rent to the University of Cambridge and has established a farming business and research facility for potatoes. The only soil suitable for potatoes is conserved for research. The farm grows 16-18 acres of potatoes annually. No commercial potatoes are grown.

Some of the experiments are into late blight and this work is done at isolated sites to ensure that they are not near any commercial crops. They also run experiments throughout the UK and Europe.

As they receive no government funding the farm has to support itself and rely on funds from the Cambridge University Potato Growers Research Association (CUPGRA). CUPGRA raise subscriptions from members for a quarter of the experiments (some years they have been the majority funder) and in the early days they kept the farm operational.

The farm has the biggest seed potato research program in the UK, if not the world. Its research areas include:

- Physiology
- Pathology - especially control of late blight
- Nutrition - nitrogen management in relation to potential restriction due to nitrate leaching through drainage

They also manage the whole of Frito Lay Technical services in Europe, which takes them into processing, seed and variety selection. They also have a joint breeding program with the SCRI in Scotland.

Their Frito Lay connection continues to grow, covering the whole of Europe and now involving a significant amount of direct crop management including: commercialisation of Frito Lay varieties; agronomic recommendations; importing the crops; and guiding crop growth. They also provide these services to a number of small potato producers, one of the biggest being the chairman of CUPGRA, John Chen (1/3 of one employees time is spent on his farm).

They do this for a couple of large small-potato growers and they are beginning to undertake managing crops in Spain and Poland. Their Frito Lay involvement provides them with a big connection in the USA. Through their breeding program and agronomy work in Wisconsin, they consult for one of their biggest growers in Nebraska and it is possible that ¼ of their entire activity for 2004 could be with the USA.

Outcome

Seed multiplication practices in the UK are changing very rapidly at the moment, more than they have in the last 50 years. There are two central elements as to how they look at crops: the first is to identify how many stems are produced and second is to understand the actual requirements of the factory or packer for tuber type.

They believe that leaves need to be managed to get the tuber type that is needed. Starting with the tubers and working back makes it very difficult get accurate information as the growth is in the other direction. Their work on seed is about determining and understanding the number of stems. This work is driven by the biggest growth sector of the fresh market: for the last 10 years it has been producing

tubers between 38mm and 42mm diameter. The incentive to produce in such a specific size grade is huge returns for success and a price differential of 5 or 6:1 for failure.

John Chen has worked with the farm for many years and has experienced the achievement of extremely successful and profitable crops and terrible crops that lost money. A link with stem number has been established, when the same population of seed tubers was planted some produced 2 or 3 times as many stems. When this happened there was success and when it didn't money was lost, as a result John and some other growers drove the interest into why 2 stems or 4 stems are produced when the population and the process is apparently the same.

Cambridge University Farm's trial field.

English seed is better for multi-stem crop production, than Scottish seed. The other benefit of English seed is, a lot of English growers now plant in Spain and Portugal for Christmas harvest, if Scottish seed is used it will be dormant and unsuitable. Short season crops that are lifted quickly can marginally eliminate things like silver scurf, but if they are left in the ground too long silver scurf will build up, as will black scurf. Virus isn't necessarily the biggest problem facing the UK Industry, it is small compared to the losses due to skin blemishing in fresh market potatoes. Black Dot is such a problem in the UK that seed without it and land without it is the only sure-fire way and there's not much land without the disease.

Not all potato varieties behave the same in regards to physiological age, but the ones investigated by the Cambridge University Farm broadly conform to the same rate of change. Most of the varieties tested require different time periods to experience a change and the change occurs more rapidly as the seed gets larger.

Estima has dominated the market for baking potatoes because it has relatively few tubers to start with, but the retailers would prefer Maris Piper. The problem is that it is naturally a very prolific variety, so unless you can get a single stem the tuber size needed for bakers will be produced too late.

It is in the best interest of the seed grower to plant early, to get the highest possible yield, but in the UK seed crops only require approximately 12 weeks, thus two seed crops can be grown annually and the yield differential between the two is quite small.

In regards to pathogen build up, two successive crops is not very different to one, but the danger is that some growers want to repeat it a second year. Ideally there would be a rotation of 5 or 6 years but it is more likely 3 to 5 years. That's the pressure being put on the land and it is a tough decision for growers - do they take a long-term view or do they work on what they need for the next year.

Traditionally seed growers are paid by weight not by the performance of the product, but Cambridge University Farm believes growers should be paid according to the number of tubers at a particular size. They also define a seed crop as having no tubers over 55 mm and preferably none over 50 mm. The problem is that most growers don't understand this and trading seed is still the norm: the buyer says "tell me the size, tell me the variety, tell me the grade, tell me the price" and then they argue out a price.

CUF also attest that a premium should be paid for the physiological quality of seed tubers because it is about adding value.

They limit their seed tubers to 50 mm (approx 30 grams) because they can't fit through a planter and they don't want to cut them. Cutting seed tubers introduces variation, 2 pieces is manageable but once it goes beyond the variation is considerable and, in some varieties, there's a fair chance that some pieces do not have any eyes and hence will not establish plants.

The reluctance to use small seed in the UK is due to the way of planting, either by machine or hand, the small seed ends up being planted deeper and therefore takes longer to emerge. All machines without sophisticated depth control will put the bottom of the seed piece at the same depth and if you have a 55 mm and a 25 mm seed tuber, the smaller one is going to have to grow an extra 30mm before it even gets out of the ground. It is then concluded that it has no vigour or there's something wrong with it, but there's nothing wrong with it - the planting method just gave it a handicap.

CUF also believe that good seed can be produced at lower altitude. They believe that the virus risk issue is grossly overstated and that monitoring techniques are adequate to achieve aphid vector control. Lower altitude seed, in warmer conditions may also be useful to produce crops with higher stem numbers, which can be beneficial to some producers.

Hannah Parish, NIAB – Dinner Talk

Day 5 (Sunday 07/09/2003)

Background


Hannah Parish.

The National Institute of Agricultural Botany (NIAB) was founded in 1919, "*to develop plant genetic resources through research, technical services and training".* NIAB was privatised in 1996, has its headquarters in Cambridge and employs 220 staff.

Services include:•NIAB Association Membership

–Recommended Lists for all crop species–crop variety publications

–plot demonstrations

–access to NIAB technical experts

–Landmark

–cereal gross margin analysis

–access to NIAB web site

–discounts on publications and training

•Technical services

-Distinctness, Uniformity and Stability (DUS) tests for all crop species

–seed germination, vigour, purity

–seed health

–variety determination

–potato cyst nematode identification

•DNA services

–more rapid turn around

–greater accuracy

Outcome

Evolution of the potato

•3,500 years ago people ate roots to be healthy

•2000 years ago they were told that was heathen and they should pray for health

•150 years ago they were told that was old fashioned and 'take this potion'

•50 years ago a pill replaced the potion

•15 years ago "too much reliance on pills, take this antibiotic"

•NOW - eat this root 'because it is good for you!

There is now a significant opportunity to promote fresh potatoes on their health benefits.

Selection of appropriate variety

- •must meet customer specification
- •should be resistant to characters which have proved to be a problem in your growing conditions
- •should not be so weak in another characters that it might pose a new problem

Important characteristics for intended market

- •dry matter %
- •skin finish
- •tuber shape
- •tuber number and size

Factors affecting variety performance

- •Seed quality
- •Chitting (pre-plant sprouting, which is a common practice in the UK)
- •Planting
- •Growing conditions
  - –soil type
  - –soil fertility
  - –water availability

The British Potato Council also funds and Independent Variety Trials programme at NIAB, which is investigating the following:

- •Quality
- •Yield
- •Agronomy
- •Disease Resistance

Quality•Tuber shape

- •Uniformity of shape
- •Eye depth
- •Skin colour
- •Skin texture
- •Flesh colour
- •Dry matter %
- •Internal defects

Agronomy

- •Dormancy of tubers
- •Sprout length
- •Emergence
- •Foliage maturity
- •Haulm development
- •Tuber initiation
- •Bruising and damageYield
  - •Total yield
  - •Split graded for marketable yield
  - •Fractions counted and weighed
  - •Outgrades counted and weighed

Disease Resistance

- •Foliage Blight and Tuber Blight
- •Blackleg
- •Common Scab and Powdery Scab
- •Gangrene
- •Potato Leaf Roll Virus
- •Potato Virus Y
- •Spraing
- •Black Dot
- •Black Scurf
- •Skin Spot
- •Dry Rot
- •Slug Damage
- •Potato Cyst Nematode - Ro1 and Pa2/3

Common Scab - Streptomyces scabies

•Actinomycete (similar to bacterium)
•Tubers susceptible for a short period after initiation under conditions of soil moisture deficit
•Favoured by pH 5.2 - 7

Disease Management•Irrigation
•Resistant Varieties e.g. Nadine
•Avoid low pH soils

Powdery Scab - Spongospora subterranea

•Soilborne - sporeballs
•Seedborne - pustules and cankers
•Zoospores hatch - infecting roothairs
•Favoured by low temps and irrigation at tuber initiation.

Disease Management

•Careful irrigation scheduling
•Avoid susceptible varieties - Cara, Estima
•Avoid use as stock feed - can be transmitted in dung from cattle

Silver Scurf - Helminthosporium solani

•Seedborne (also soilborne in short rotations)
•Infection spreads tuber to tuber in store
•Also spread by ventilation currents
•Symptoms become sooty with humidity
In the store:•Sporulation abundant at 85-100% RH
•Optimum around 90% RH
•Under lower temperatures spore production continues at a slower rate.

Disease Management

•Store management

•Hygiene
•Fungicides - Thiabendazole resistant strains

Black Dot - Colletotrichum coccodes

•Underground spread from mother to daughter tubers
•Pathogen spreads under epidermis of plants and tubers
•Sclerotia resistant to chemicals

Disease Management

•Store management
•Hygiene
•Fungicides

Skin Spot - Polyscytalum pustulans

•Skin spot symptoms usually show in later stages of storage
•Fungus kills growing tip of sprouts
•Brown stem lesions can be seen in field
•Cold climate disease

Disease Management

•Fungicides
•2-aminobutane - (2007)
•Resistant varieties - Fianna

Summary

•Maris Piper - major player (some weaknesses)
•Increasing influence of the multiples
•Reduction in fresh product and increase in processed product (impact on variety choice)
•Identify potential new varieties
•Get the most out of current varieties**The Future holds?**

•The increasing importance of research
•Organics
•EC Water Framework Directive - need to demonstrate efficient use of water
•Sustainability

Scottish Crop Research Institute (SCRI)

Day 9 (Thursday 11/09/2003)

Background

The Scottish Crop Research Institute (SCRI) was formed in 1981 by the amalgamation of the long- established Scottish Plant Breeding Station with the Scottish Horticultural Research Institute. In 2000, SCRI celebrated 50 years at Invergowrie, and an 80-year history of outstanding contribution to UK agriculture. It has a £13.5M budget with 60% coming from government and the rest coming from grants and contracts.

Finlay Dale.

The SCRI aims to: increase knowledge in the basic biological sciences; improve crop quality and utilisation through the application of conventional and molecular genetical techniques and novel agronomic practices; and develop environmentally benign methods of protecting crops from depredations by pests, pathogens and weeds. In particular, SCRI seeks to create and protect wealth in relevant industries, improve the quality of life and protect the environment.

The SCRI has about 400 staff including around 280 graduate scientists and 150 short-term contract staff and research students. Research covers three main groups, Cereals, Potatoes and Soft Fruits and is divided into three broad Themes:

- **Mechanisms & Processes** (gene expression, how genes work, communication from stem to cell, communication from cell to cell, plant to pathogen interactions, how plants recognise they are being attacked by pathogens at a molecular level ect)
- **Genes to Products** (how genomes organise, identifying genes, how genes work - very basically, trying to understand how plants work)
- **Management of Genes & organisms in the environment** (ecosystem management, biotechnology, environmental interactions at the soil and host parasite co-evolution.)

They also study five main pathogen groups:

- Fungi
- Viruses
- Nematodes
- Bacteria
- Insects

Breeding glasshouses at the SCRI.

The SCRI currently holds the IP to:

35 inventions filed since 1990

- 7 have been assigned to third parties
- 7 are owned by SCRI/Mylnefield Research Services
    - 1 granted, 6 pending
- 21 have been discontinued

47 cultivars protected by plant variety rights

- 5 cultivars pending
- 6 trademarks have been registered

The breeding/research programs currently being undertaken by the SCRI include:

- Improve efficiency of breeding potatoes at cultivated 4x levelSpeed transfer of important new disease resistances / quality traits from wild speciesDevelopment & use of molecular markers to track & speed transfer of important traitsGenerate improved parental material for use by industry.

SCRI works collaboratively with Edinburgh University and have an open door policy, although material and IP arising from commercial contract research is dedicated to that company. Thus, when McCain Foods or Greenvale AP have breeding work done, the IP and material is confidential. They collaborate equally with large and small companies.

Flowers used for cross-pollination.

They have made some fundamental changes to potato breeding with greater focus on specific traits like resistance to tuber greening, PCN resistance and various quality attributes.

They have done a lot of fundamental research on the efficiency of breeding systems. Prior to that it was basically a matter of crossing the best with the best and hoping for the best, throughout much of Europe and America. Traditional breeding programs produce up to 200,000 seedlings and may generate only 1 or 2 varieties per year. Now, 5-10,000 seedlings can be sown and as many varieties can result because of improve selection efficiency in the breeding program.

Each breeding process is different; some companies want to be very hands on throughout the program. As well as funding, they are also assisting with the process. Thus, it is vital for the IP to be determined from the onset of the program. SCRI owns all germ plasm and the companies get an exclusive worldwide licence for the ones they select.

If at some stage the company is no longer interested in a variety, the commercialisation rights then return to SCRI because they have the IP. They have had companies pay for breeding programs and after 7 or 8 years decide that it is not what they want and hand the varieties back.

They have also developed and released an integrated decision support system for potato growing. MAPP - Management Advisory Package for Potatoes has been designed to advise how to best maximise profit.

Outcome

There has been a shift in emphasis from production to consumption. There is now more emphasis on safety, quality, authenticity and traceability of food. Societal and environmental aspects of biotechnology must be considered.

There is a need of new cultivars that:

- •Suit sustainable agriculture with lower inputs
  - Disease and pest problems
  - Environmental stresses - drought / heat / salinity etc
- •Meet the increasing quality requirements of processors
- •Have new quality traits for new processed products
- •Meet the demands for nutritional and healthy traits

The disease resistance genes from wild species are very important as an opportunity to combat diseases without using chemicals. Wild *Solanum* species from the Commonwealth Potato Collection are being examined for novel sources of resistance: *Solanum phureja,* one of approximately 3500 cultivars native to South America, is currently being used. Day-length adapted phurejas were to be commercialised in 2002/3.

Supermarket Items

Participants purchased items of interest during the supermarket visits. Some are for packaging reasons and others for the ready-meal solution. Some items were prepared in the evening and taste tested by the group. Below are pictures of the packaging and the prepared products.

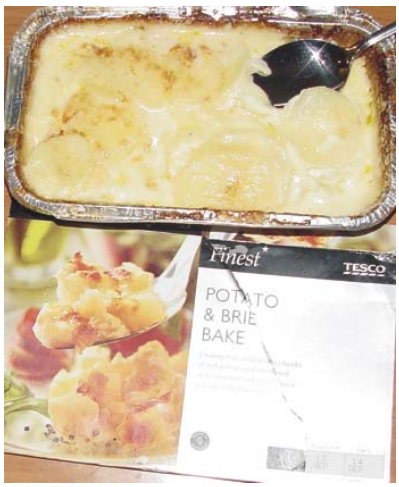
Punnet packed large bakers.

Peeled potatoes ready boiling, baking or microwaving.

Pre-prepared onions.

Pillow packed baby potatoes.

Wedges for baking.



Gourmet Potato bake.

Filled baked potato.

Pre-prepared easy cook potatoes.

Flavoured mini potatoes.

Potato mash.

Potato Bake.

Easy cook potato croquettes.

Gourmet potato bake.

Easy meal solution – Sausages and mash.

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Overviews	Seed Potato	Fresh Potato	Processing	Research

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Appendix

An Investigative approach

into the Foodservice Market

Kay Hogg
Marketing Executive
August 2002

Contents

Section 1

1.0 Executive Summary

This report was commissioned to provide a better understanding into the UK foodservice market and to identify what input if any the British Potato Council should have within this sector.

The UK Foodservice market is the 4th biggest consumer market with an estimated 264,000 outlets (compared with an estimated 3,000 in UK retail). The market is currently worth £22.89 bn in sales per annum (Foodservice Intelligence 2001) and is estimated to be worth £38 billion in 2010 (IGD 2000).

Highly competitive, the market faces continuous pressure from imports especially due to current favourable exchange rates. Political, social and technological factors are continually changing, exerting pressure on this market and hence provide opportunities and threats for key players in it.

Foodservice is split into two distinct sections: profit and cost. The cost sector is set to decline in value while the profit sector will grow in value (Dewberry Boyes). However the number of meals served within the cost sector means it is important contributor to the volume of meals served in the total foodservice market.

It is estimated that 75% of foodservice goods sold are via intermediaries, i.e. wholesalers (Foodservice Intelligence). There are two large catering wholesalers, 3663 and Brake Bros. Market distribution is normally classified according to temperature: ambient, chilled, fresh, frozen etc.

The chipped potato market is worth the most in terms of value, £279.95 million but the fish & chip shop sector consumes the most in terms of volume 782,758 tonnes of fresh with skins (this does not include fast food and travel sectors). Merchant/growers remain the primary distributors of fresh with skins while frozen food wholesalers remain the most popular route to market for chipped and "other potato products"

Key changes over the past five years within the potato market include a 15% rise in the usage of potatoes by pubs. The volume of potato products has increased significantly with an increase of 20%. Innovation and new product development in this area, particularly the frozen variety, enables foodservice operators to serve food that is both appealing to their customers and quick and easy to provide.

Calculating the percentage of imported product into the foodservice market is difficult, however it is clear that imports are a threat for domestic potato production.

Top volume players in the foodservice market (excluding fast food and air travel) are Enterprise Inns, Punch Pub Company, Pub Master, Six Continents, Scottish & Newcastle. In limited investigations so far with key operators, the major reasons for using foreign opposed to British potato products are price and consistency of quality as well as the ability of one foreign player to supply a large volume of product.

A BPC levy payer questionnaire was conducted to further understand the needs of levy payers currently operating in the foodservice industry.

Recommendations for the British Potato Councils future activities in this area concentrate on three specific sectors: Fish & chip shop trade, school meals catering sector and developing a further understanding into six key operators buying habits.

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1.1 Introduction

The aim of this report is to provide an overview of the UK Foodservice market with an ultimate aim of identifying what input, if any, the British Potato Council should have in the foodservice market.

In the first section an overview of the general industry structure and its trends is given and key players (operators and distributors) in the cost and profit sector are identified.

The foodservice market for potatoes has been examined, identifying market sectors according to value and volume of potatoes sold as well as methods of distribution.

The results from the BPC's levy payer questionnaire are outlined.

The report concludes with a number of recommendations for BPC strategy within the foodservice market.

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Section 2

2.0 Background to Food Service market

The Foodservice market "exists to provide prepared meals and refreshments for consumption primarily outside the home" (IGD)

Unlike the retail market, the foodservice market in the UK is much more fragmented, consisting of not just one market but lots of smaller markets that come under the foodservice umbrella. As a heterogeneous industry, split into many different identifiable sectors, each of these sectors has their own specific needs. Group business is of primary importance with complex relationships operating between different parties.

In the UK the current estimated size of the foodservice market is £22.89 bn sales per annum (Foodservice Intelligence 2001). This represents the sales from approximately 264,000 outlets and means that the foodservice market is the UK's 4th largest consumer market.

Unlike the retail market, which has approximately 3,000 outlets, there are 264,000 foodservice outlets in the UK. However within foodservice there are no truly dominant players (with over 5% market share by value). Over 90% of foodservice businesses has a turnover of less than £250,000, however large companies do exist and regular mergers and takeovers are a strong characteristic of the industry.

2.1 Future Growth and trends of UK Foodservice market

The UK foodservice market looks set to continue to grow. Presently 66% of consumption in the UK is in the home, however it is predicted that by 2025 eating out of home will account for 50% of consumption (IGD).

Since 1992, fast food and restaurants have seen a 31% increase in sales volume and pub catering expenditure has grown at more than 38%. Convenience remains the driving force in eating out of home.

In 2010 the total foodservice market is estimated to be worth £38 billion (includes profit & cost sector as well as building in price inflation, retail also builds in price inflation) (IGD "Catering for the Consumer December 2000).

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UK Food spend forecast

	Foodservice (£M)	Retail (£M)
2000	22,483	54,639
2001	23,725	55,598
2002	24,969	56,628
2003	26,280	57,997
2004	27,684	59,298
2005	29,151	60,218
2006	30,779	61,117
2007	32,470	62,129
2008	34,255	63,219
2009	36,106	64,086
2010	38,057	65,042

source: "Catering for the consumer" Dec 2000 IGD (inflation built into this at approximately 2.5% per year)

The future of the foodservice market is likely to be characterised by more competition, with more retail supply companies entering the market, fewer distributors and more pressure on operators in terms of price and delivery. The future of foodservice will remain an uncertain place but the market will continue to provide opportunities, key will be for operators, distributors and manufacturers to maximise opportunities.

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2.3 Industry P.E.S.T Analysis for Foodservice market in the UK

The below identifies some of the issues the Foodservice market faces

Political

- Effect of government legislation on food policy and food farming
- Staff and labour law changes
- Legal/voluntary labelling codes of practice
- Impact of monopoly and mergers commission
- Effect of food scares on foodservice consumption and hence the need for increased traceability is growing within this sector
- Effect of the Food Standards Agency

Economic

- Highly competitive market place
- With the emergence of larger companies, innovation is now applied to cost reduction as well as quality, ambience and service
- Removal of barriers to entry within the market makes foreign supply easier
- Effect of current favourable exchange rates on the importation of foreign products
- Pervasive and sustained over supply of many fresh produce items: too many growers are producing too much produce for which they have no secure market outlets
- Cost of entry

Social

- Eating out more often – British family has changed in reputation, imagination and adventurousness.
- By 2006 40% of eating out occasions respectively will be during the working week.
- More eating on the hoof/ food to go/dashboard dining/snacking
- Smaller UK households –size has almost halved over the past 100 yrs to 2.4 people per household (Alfa Mega Ltd 2001)
- Rise in number of single people households – one in three households today comprise of just one person with 66% of all households being childless.
- More demanding consumers –expect more variety, more choice, higher standards

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- Some people still believe best meals are those cooked “from scratch” and with declining cooking abilities in house, eating out may be the only way to enjoy a home cooked meal.

- Higher disposable income families – “cash rich time poor”

- Growing awareness of the relationship between the right food and improved health (Analyst August 2001)

- Women working full and part time now represent over half the UK workforce and an additional 3 million are expected to enter the workplace by 2005 –implications are additional income and less time

- Increase in penetration of branded, managed restaurant chains

- Standardisation of menus

- With an ageing population, there may be fewer people to work in the catering market –this may have implications for more pre-preparation product and impact on packaging forms

- Food often used as a “status symbol” and there is an element of “trading up” within the foodservice sector. Fads and whims are common factors in deciding the importance of particular food products.

Technological

- New farming/processing methods

- Changes in supply chain structure through methods such as e.g. JIT (Just in time)

- Increased shortage of skilled labour –deskilling

- Effect of e-commerce on the ordering and distribution of goods in the industry

- Effect of a more powerful chilled distribution network on the supply chain

- Improvements in traceability through new technology in the supply chain.

To summarise this is a competitive market, subject to a host of social, political and technological issues. These have impacted and will continue to impact the foodservice market in a number of different ways.

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Section 3

3.0 Market Structure

The Catering market is divided into two distinct sectors: Cost and Profit

Profit Sector: includes any operation where net profit is made
Cost Sector: is where operators work on a fee or subsidy
(Dewberry Boyes)

The cost sector is set to decline by 5.36% by 2002 with the profit sector value to grow by 10.4% by 2002 (Dewberry Boyes).

Currently the cost sector contributes over 35% of turnover in the foodservice market.

The table below identifies key market segments and their value for 1999:

	Sales (£M)	**Outlets**	**Meals served (millions)**	**% Market share**
Restaurants	4046	25,397	660.4	18%
Quick Serve	5,966.5	28,527	1,908.1	27%
Pubs	3,274.8	53,261	1,138.5	15%
Hotels	4,673.4	48,696	671.2	21%
Leisure	2,005.1	18,707	541.9	9%
PROFIT	***19,965.8***	***174,588***	***4,920.1***	
Staff Catering	843.1	20,952	1,032.0	4%
Health Care	577.3	30,443	1,070.3	3%
Education	585.8	34,536	1,204.0	3%
Services/Welfare	142.8	3,055	225.1	1%
COST	**2,149.0**	**88,986**	**3,531.4**	
Total	***22,114.8***	***263,574***	***8,451.5***	

- Key players in the *restaurant market* include:
  Conran, Pizza Hut, Pizza Express, Café Rouge, City Centre Restaurants

- Key players in the *fast food/café/take-away market* include:
  MacDonald's, Burger King, Wimpy, Tricon, (includes KFC), Scottish & Newcastle, Nomura

- Key players in the *travel and leisure market* include:
  Compass, Scandinavian Service, Bass Leisure, Sodexho

- Key players in the *cost sector* (includes staff catering, health care, education) include:
  Sodexho, Compass, Granada

  (Source William Reed Publishing 1999)

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PROFIT SECTOR

Restaurant Sector**:**
Generally the restaurant sector is in a mature stage of the development life cycle. The customer repertoire changed slightly in the late 80's early 90's with a strong introduction of specialist ethnic restaurants. However it is debatable if variety in restaurants is stimulating growth. A key trend amongst consumers is a trend towards more causal eating.

Quick Service:
The quick serve market is in a rapid and arguably unprofitable growth stage but it is a highly competitive market with a handful of specialist newcomers emerging e.g. juice bars etc.
Fast Food chains (MacDonald's, Burger King, KFC, Wimpy) are fuelling some growth mainly through product development as opposed to territory development. However the traditional "burger & chips" "chicken & chips" sector has been affected by events like BSE and also poor health images associated with it.

Pubs:
This sector has seen a lot of change in terms of ownership in the past several years, with many pubs now being owned by investment companies who's main aim is not brand building but cash flow. This remains a changing market with an expectation that more pubs will be turning into eating-places. Growth has been fuelled somewhat by taking business away from the restaurant sector.

Hotels:
This remains a complex sector with food products being served in a number of different places. In recent years hotels restaurants have been losing out due to their inability to keep up with changing food trends such as ethnic foods etc.

Leisure (includes theme parks, zoos etc):
This remains an inexperienced market when it comes to food as the primary role of this sector has been to provide entertainment. In general there are low average throughputs but it is believed this could be a major growth sector with many unexploited opportunities.

COST SECTOR

CONTRACT CATERING
Currently in the UK there are 8,930 outlets in the contract catering sector, which produce 3,531 million meals per year. The nature of contract catering is undergoing change with an increase in the leasing of an area for profit making.

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3.1 Supply Chain for Food service Market

According to Foodservice Intelligence the cost of goods sold by caterers in 1999 was £8.2bn. The Institute of Grocery Distribution estimates that 75% of this is sold via intermediaries (this has decreased from 79% in 1996). The remainder is either direct from suppliers or purchases from other sources.

Intermediaries or wholesalers, are businesses where the main activity is selling goods to trade customers in larger quantities than are sold to end users, but in smaller quantities than are purchased from manufacturers. The wholesaler takes "title" of the goods i.e. following the purchase from a supplier and prior to resale to trade customers.

In recent years there has been extensive corporate activity with two large catering wholesalers, 3663 and Brake Bros emerging.

Distribution is generally classified according to temperature distribution:

Distribution	Market Value	Percentage of Total Market Value	Key Distributors	Key Issues
Delivered wholesale – Ambient	£1.24 billion	15%	3663 Watson & Philips DBC CDA Plus others	Importance of the big players
Delivered Wholesale – Chilled	£0.47 billion	6%	Glanbia Peter's 3663 Watson & Philips DBC	Underdeveloped market compared with chilled retail. Largely due to the fact that caterers demand long shelf life, fear of wastage. Supply chain needs to become more efficient before these fears can be overcome. Predominately meat focused.
Delivered Wholesale – Frozen	£1.44 billion	17%	Brakes 3663 Woodwards Fairway Caterforce	Mature market Issues of branded v own label v unbranded.
Delivered Wholesale-Fresh	£1.33 billion	16%	Specialists	Sometimes this is the only route to market.

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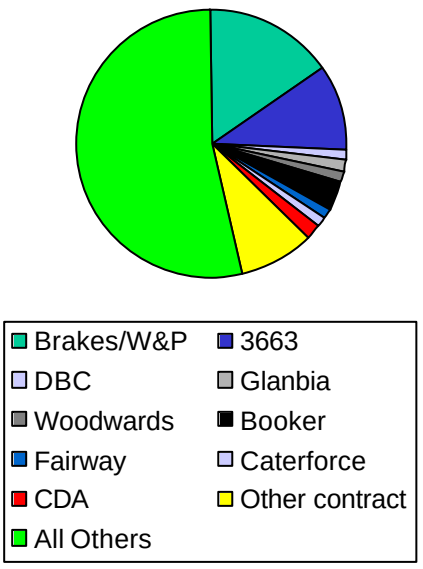
Contract Distributors	£1.34 billion	16%	Puritan Maid (Brakes) 3663 Hays Golden West Whitbread Logistics	Often limited customer base but volume means they are too important a segment to ignore.
Cash & Carry	£1.10 billion	13%	Booker Batelys Makro	Threats from delivered and retail. Not solely concentrated on food products.
Others	£1.58 billion	19%	Lots: retail multiples, local specialists, markets, farms	Growing multiple retailer presence
Multi-temp	£2.0 billion	24%	3663 Brakes/W&P DBC	High capital investment acts as a barrier to entry to other companies.
Specialist	£0.75 billion	9%	King Bunzi Food specialists	Advantage is specialisation of product, region and sector

The major players in food

Total Market Value of £8.5 billion



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The current problem with the foodservice supply chain is that it lacks cohesion. Companies within the market often act independently and do not consider the results of their actions on the remainder of the chain.

Another weakness of the supply chain is that demand data is difficult to collect and communication between end users and others in the supply chain is weak. Food preparers and chefs are often not involved in the product development process conducted by many suppliers. This can lead to poor success rate in new product development. However strong informal communication does exist efficiently between wholesalers and their customers.

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Section 4

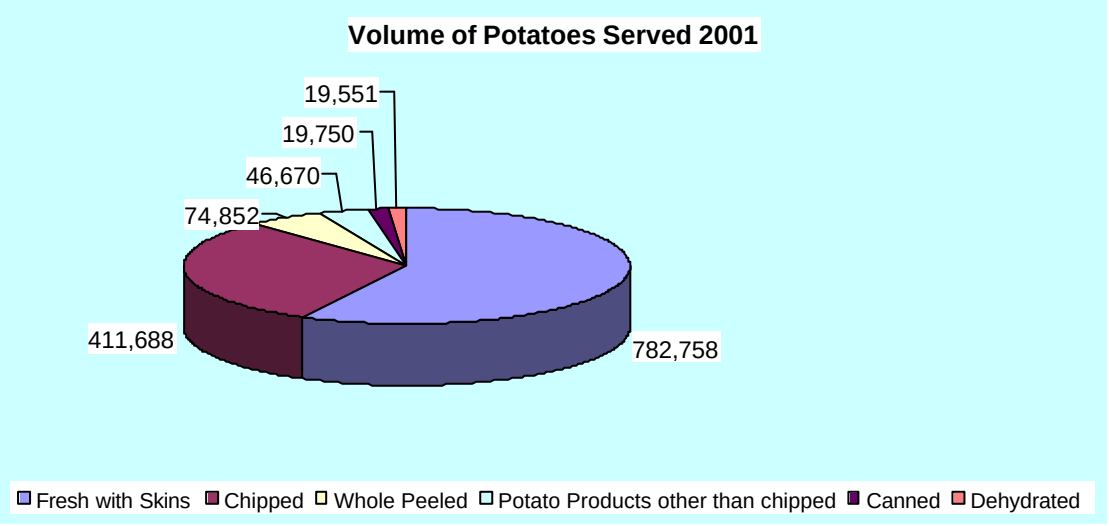
4.0 Potato Industry Foodservice Market

The information below is sourced from Foodservice Intelligence 2001 and focuses on the following market sectors: hotels, restaurants, pubs, fish & chip shops, cafes, leisure (zoos, theme parks), staff catering, health care, education services. It DOES NOT include fast food restaurants (Mac Donald's, Burger King), travel sector nor the much smaller sectors of service, nursery schools, sandwich bars and mobile vendors.

Topline Overview Information

Total Volume used (British & Foreign):	1,355,269 tonnes
Total Value (estimate at Caters buying prices):	£539,39 million
Top Sector (volume):	Fish & Chips
Main product type (volume):	Fresh with skins
Main product type (value):	Chipped Potatoes
Primary Distribution Channel (volume):	Merchant growers
Primary Distribution Channel (value):	Frozen Wholesalers

Fresh with skins and chipped remain by far the largest volume sectors, between them controlling 88% of all foodservice volume in 2001 (shown below).



Fresh with skins (estimated at caterers buying prices) account for over half the total value of the foodservice market, followed secondly by chipped.

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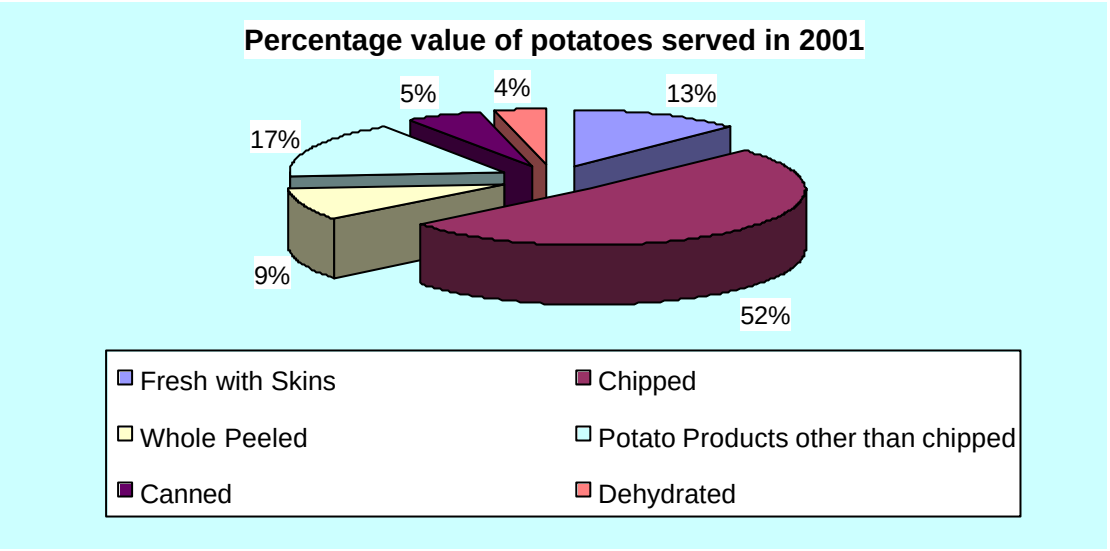
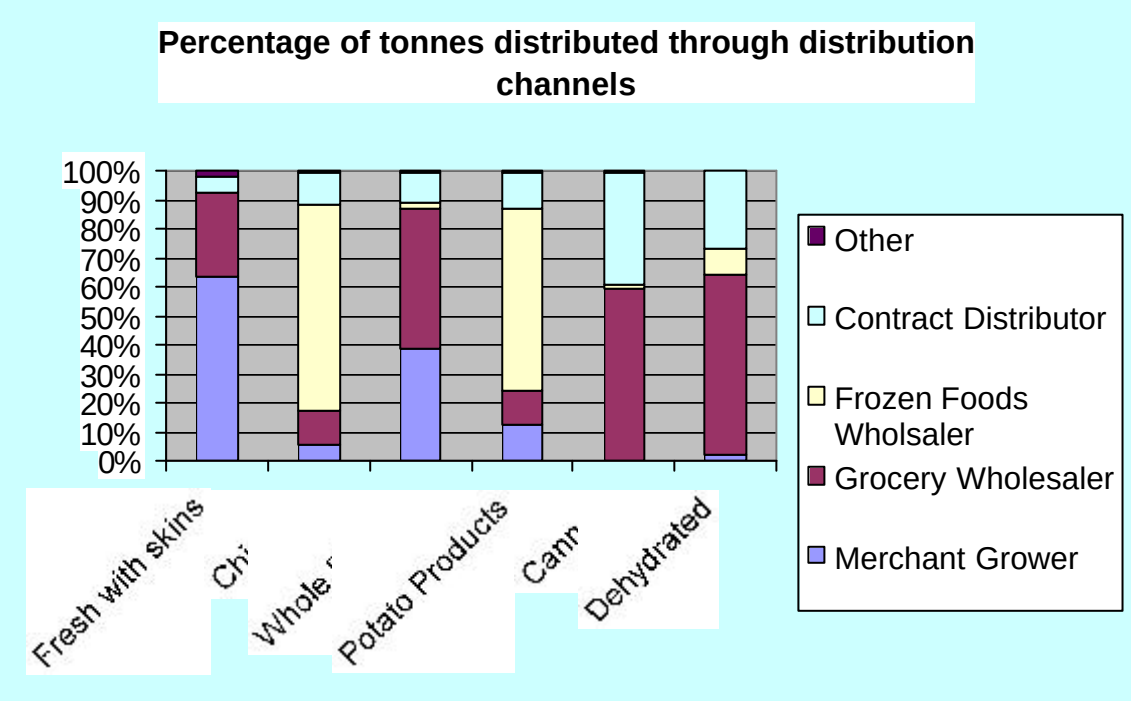


In value terms, the chipped market is estimated to be worth £279.95 million at foodservice level with other potato products estimated to be worth £89.61 million. Fresh with skins is the third biggest market estimated to be worth £68.30 million.

Distribution channels

The chart below highlights the importance of different distribution channels for different potato products.



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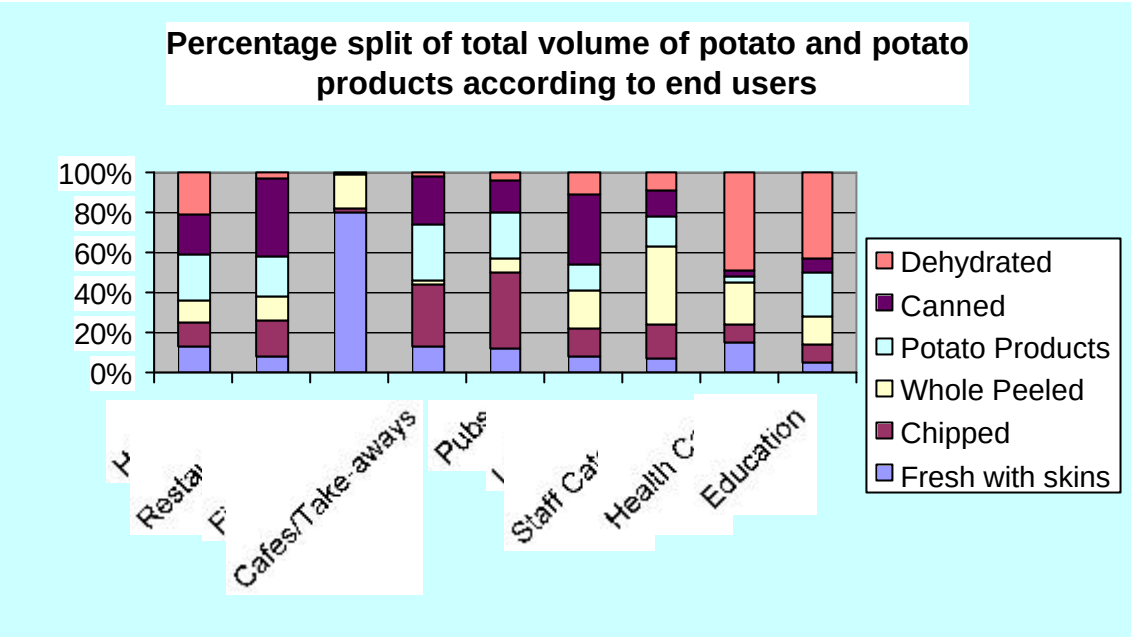
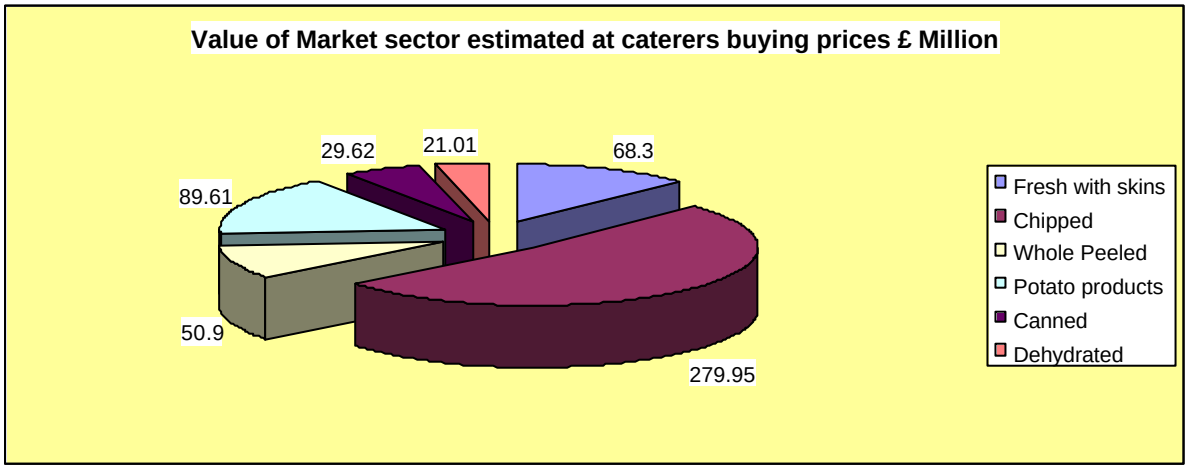


The pie chart below summarises the total value (estimated at caterer buying prices) of the different potato types



Difference in potato food service market 1997-2001 (excluding Fast Food and travel sector)

The distribution of potatoes across the market has not seen any major changes since 1997. Fish & chips still remain a key sector with an overall market share of 29%. However, pubs have increased their usage of potatoes by 15%. Over the past few years, the role of food has become more important for the pub business as operators see it as a way of improving turnover and profitability.

Fresh potatoes with skins and chipped potatoes are still the most purchased products with 782,758 tonnes and 411,688 tonnes served in 2001 respectively. The volume of potato products has increased significantly with an increase of 20%. Innovation and new product development in this area mean that potato products, particularly the frozen variety, enable foodservice operators to provide food that is both appealing to their customers and quick and easy to provide.

Over 90% of the total volume of potatoes is distributed through delivery channels and almost all of this volume is accounted for by merchant growers and wholesalers. Reflecting the increase in the volume of potato products, which are mainly, frozen and of higher value, the value of potatoes delivered by frozen wholesalers accounts for around 46% of all purchases of potatoes.

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Although several sectors have not been included in this report, it is estimated that approximately 30% of the total volume of potatoes served goes into the remaining foodservice sectors of fast food, travel sector and smaller sectors of nursery schools, mobile vendors and sandwich bars.

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4.1 Country of origin

Imported potatoes are allocated to the three following channels: retail market, foodservice market and manufacturing of processed and preserved potatoes.
Accurately judging the importation of potato and potato products into the foodservice market is difficult as those products imported for the manufacturing of processed and preserved potatoes are often re-injected back into the food service market.

A separate analysis of data is available on request.

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4.2 Key Players in the Potato Market

Leading Group operators in Profit sector:

The market is dominated by two market sectors with Fish & Chips and pubs consuming 45% of the total foodservice volume.

The percentage of group operators within the fish & chip shop sector is very small accounting for 0.7% of all fish & chip outlets. In terms of value, the total amount of food purchased by group operators in this sector represents 2.2% of the total. However, the biggest group operators are more likely to be found in the pub sector where the percentage of group owned outlets is 76.7%.

The below table highlights the annual volume of potatoes served by the leading group operators and their estimated values

Operator	Volume served (tonnes)	% of total volume	Estimated value £ Million
Enterprise Inns	21,900	1.6	11.7
Punch Pub Co	17,440	1.3	9.3
Pub Master	13,140	1.0	7.0
Six continents	10,560	1.0	5.6
Scottish & Newcastle	9,900	0.8	5.3

(Foodservice Intelligence 2001)

Leading group operators in the Cost sector:

The main operators in the cost sector are Compass and Sodexho. Both these companies operate in many market segments such as staff feeding, health care, education but also quick serve and leisure. Within the cost sector their business is usually measured in number of contracts as opposed to number of outlets. A contract can cover a number of outlets so it makes the estimation of food purchases more difficult. Collectively these two operators turn over £2.5 billion in the cost sector.

Sodexho

French based international food and management company with 17,500 clients in 66 countries and a turnover of US$9.3 billion (Sodexho website).
Every working day some 1,000,000 people are eating with Sodexho.

In the UK and Ireland Sodexho is the leading provider of catering and support services to people at work, at leisure and in healthcare and education. Gardner Merchant merged with Sodexho in 1995 and now operates as the UK Sodexho unit. It has been identified that 6,000 tonnes of fresh and frozen potatoes are bought by Sodexho every year in the UK.

Compass Group

They are the world's leading foodservice and hospitality organisation with revenues in excess of £9 billion having merged with the Granada Group. Eurest and Sutcliffe catering also operate under this group.

Compass supply to offices, factories, railway stations, airports, educational institutes, retail stores and offshore sites.

Compass also has a portfolio of brands including Harry Ramsden's, Burger King, Upper Crust etc.

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Leading suppliers of potatoes:

The distribution of potatoes to the foodservice market is dominated by frozen wholesalers, which account for over 45% of all purchases of potatoes. Frozen wholesalers are the primary source of purchases for potato products and chipped.

Delivered wholesale –FROZEN

1. Brake Bros

Leading supplier of quality frozen, chilled, fresh and ambient food to the catering industry across UK and France with current group turnover exceeding £1 billion.

Mission Statement:
Our shared objective is to be the leading foodservice supplier to the catering industry, providing profit opportunities for our customers, developing employees to their full potential and generating profit for reinvestment in the business to the benefit of our shareholders, customers and employees.

Brake Bros has made a couple of large acquisitions with the purchase of Watson and Philips foodservice and Cearns & Brown to provide it with more scale and breadth across the supply market. However it is believed that Watson & Philips do not handle any potato products with all of this being dealt with through Brake Bros.

Brake Bros have an extensive vegetable product portfolio with approximately 58 potato product lines. These can be classified into the following product categories:

Brake Fries (Brake Julienne Freeze chill French fries, Brake ever crisp fries etc)
Brake Seasoned Fries (straight cut, crinkle, shoe string, oven chips, spicy wedges etc)
Brake Potato Specialities (jacket wedges, mini roasting etc)
Fun Shapes Mean Fun for Kids (potato puzzles pieces, potato waffles, donuts, etc

According to Ken Knowland, Head of grocery at BB, top opportunities for the company remain within frozen dishes in the starter, snack as well as dessert categories. On the grocery side, confectionery, crisps/snacks and carbonated drinks remain major growth areas.

Figures have been obtained from Brake Bros regarding their total tonnage and value of potato and potato products bought. However this is confidential information and therefore is not included in this report.

Currently the fresh and chilled department of Brake Bros remains small however there are plans currently underway to expand the chilled sector.

2. Delivered Wholesale – MULTI-TEMP
3663

This is the renamed Booker foodservice, which was purchased by the South African distributor Bidvest in May 1999.

3663 are one of the leading distributors of frozen, chilled and ambient foods for caterers. Current turnover for the company stands at over US$10,000,000 Dec 1999 (3663 website) and they supply both independent and catering chains.

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Similar to Brake Bros, 3663 have their own brand of products for caterers under the "Smart Choice" label. This includes frozen vegetables and ready prepared meals.

Having spoken to the customer service department, it is believed 3663 do not deal in any fresh potato products. McCains are the sole supplier to 3663 and supply approximately over 100 different product lines including such things as potato wedges, jackets, mircowaveable mash, children's potato shapes range.

Three other leading frozen delivered wholesalers exist in this group. One of which is ***Caterforce*** a consortium of 6 foodservice distributors that was formed in 1991 supplying both frozen and chilled foods. Secondly ***Fairway***, a national foodservice purchasing and distribution group for national accounts, specialising in frozen and chilled foods and the Iceland group plc. Together Brake Bros, 3663, Iceland Group, Caterforce and Fairway account for £1.44 billion of all frozen food delivered into the foodservice market.

Cash & Carry's

1. Booker

Currently Booker cash & carry have 178 branches throughout the UK.

Fresh potatoes at Booker represent 27% of the vegetable category in sales value and volume. 300 tonnes of fresh potatoes are sold each week with 15,500 tonnes purchased from the grower each year. Fresh potatoes sales turnover in 2001 was £3.1million

Key product lines for Booker on the fresh side are baking, chipping and catering potatoes.

2. Makro

With 28 branches in the UK, Makro is a wholesaler offering a food and non-food product mix.

Marko sells both fresh (peeled, cut, sliced) and processed potatoes, with the processed chip potatoes being supplied by McCains.

3. Batley's Cash & Carry

Batley's support the independent retailer and catering trade and currently Batley's stock 25,000 product lines. R.S. Cockerills are the main potato supplier to Batley's and are very keen to get involved in marketing promotions.

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4.3 Internal Research

BPC Levy Payer Foodservice Questionnaire :

A questionnaire (see appendix 2) was sent out to 1,000 BPC purchasers and processors to identify who in the industry is actively involved in foodservice, identifying what products they sell where and if there are current information knowledge "gaps" in relation to foodservice.

A total of 193 completed questionnaires were received and the following highlights the main findings:

- 83% of levy payers stated they supply product to the foodservice market (16.7% did not)
- The table indicates the percentage of total business sales revenue derived from foodservice by questionnaire respondents

Percentage of total potato sales revenue which is derived from foodservice business	**Number of questionnaire respondents (out of 193)**
100-80%	82
70-50%	26
50-25%	12
25-10%	21
Under 10%	16

- Therefore just over 50% of respondents have between 80-100% of their potato sales revenue derived from Foodservice activities.
- The table below indicates the percentage of total potato tonnage that is sold into foodservice by questionnaire respondents

Percentage of total potato tonnage sold to the foodservice market	**Number of questionnaire respondents (out of 193)**
100-80%	87
70-50%	23
50-25%	13
25-10%	13
Under 10%	18

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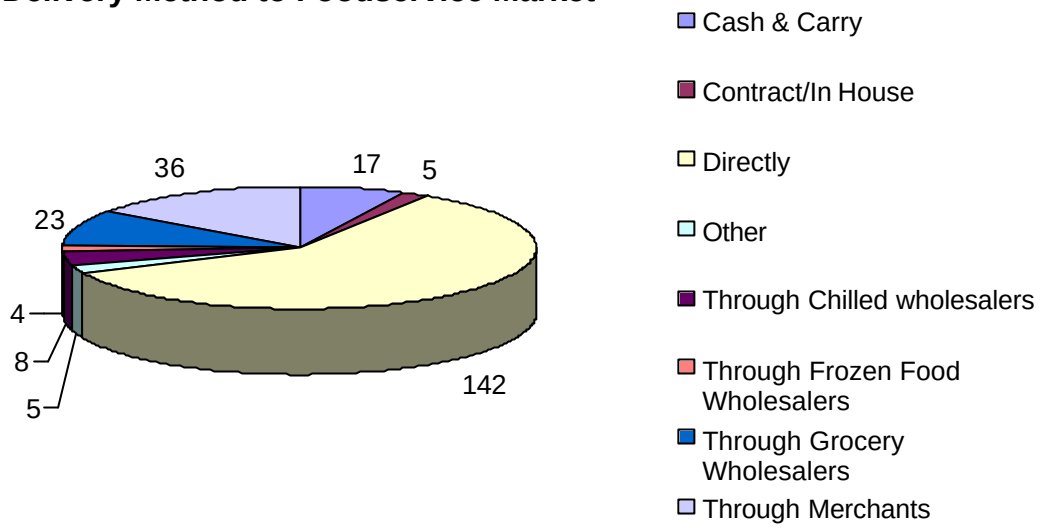
Delivery Method to Foodservice Market



The most common method of delivery was direct, followed by merchants, emphasising perhaps the smaller organisation size of the respondents who took part in the questionnaire.

Respondents were then asked to rate on a scale of 1 to 5 key issues that effect their foodservice business: (5 being the most critical to their business, 1the least critical to their business). Key findings are indicated below:

Ratings	**5**	**4**	**3**	**2**	**1**
Continuity of Supply of potatoes	54%	11%	4.6%	5.7%	3.1%
Lack of Customer loyalty	22%	15.5%	18.6%	10.8%	5.7%
Fluctuations in the price of potatoes	16%	11.9%	18.7%	10.8%	5.7%
Adhering to industry standard specifications	15%	10.8%	18.1%	7.7%	11.9%
Managing supply chain relationships effectively	14%	15.5%	17.6%	7.25%	6.7%
Limited buyer potato knowledge	12.4%	10.4%	19.2%	13.5%	10%
Price competition from overseas	11.9%	6.2%	16.5%	10.8%	22%
Lack of knowledge of the sector/marketplace	10.8%	10.4%	16%	12.4%	8.8%
Lack of understanding on correct varieties	10.9%	10.9%	18.1%	11.9%	12.9%
Assurance schemes	9.8%	4.6%	17.6%	9.8%	18.1%
Other	1%	0	0	0	0

Respondents where asked to comment on a scale of 1-5 where they believed BPC activity in the foodservice sector could be of positive benefit to their organisation (1 being an area of lowest priority for the BPC and 5 being highest area for the BPC)

Ratings	**5**	**4**	**3**	**2**	**1**
Provide an understanding into buyer habits	25%	17%	20%	10.8%	13.5%
Provide links to potential suppliers	31.6%	16%	22%	8.8%	8.2%
Educate buyers on correct varieties, spec, uses	23%	18.6%	21.7%	11.3%	10.3%
Provide Consumer Research	23%	15.5%	21.7%	14.5%	11.9%
Work with industry members in developing industry standard specifications	10.3%	13.5%	30%	17.09%	13.5%
Provide information on market dynamics	13.9%	19.17%	20.2%	14.5%	13.9%
Other, please specify					

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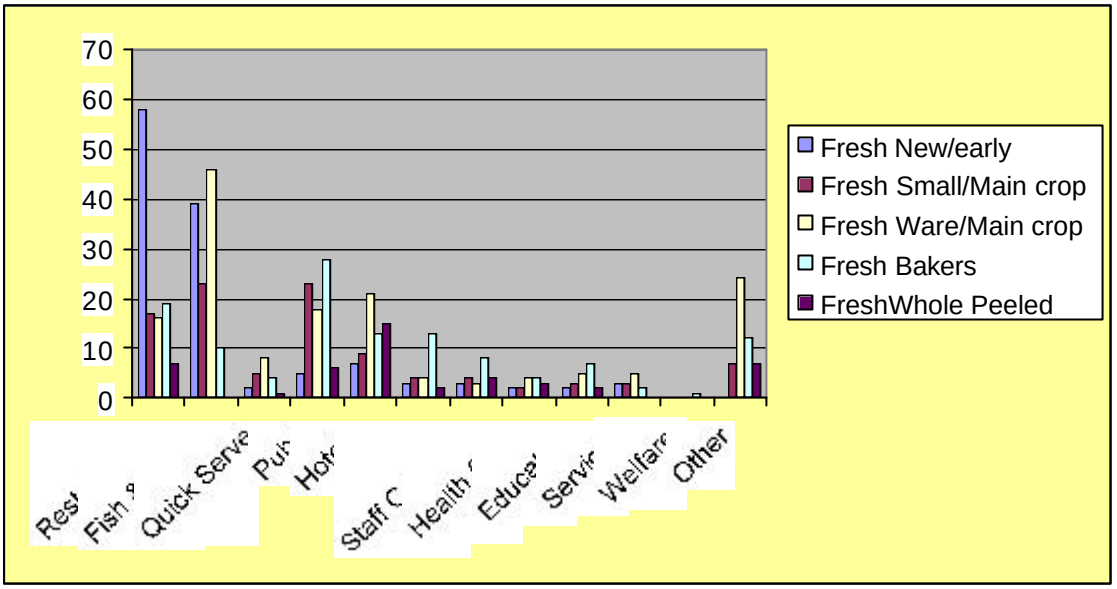
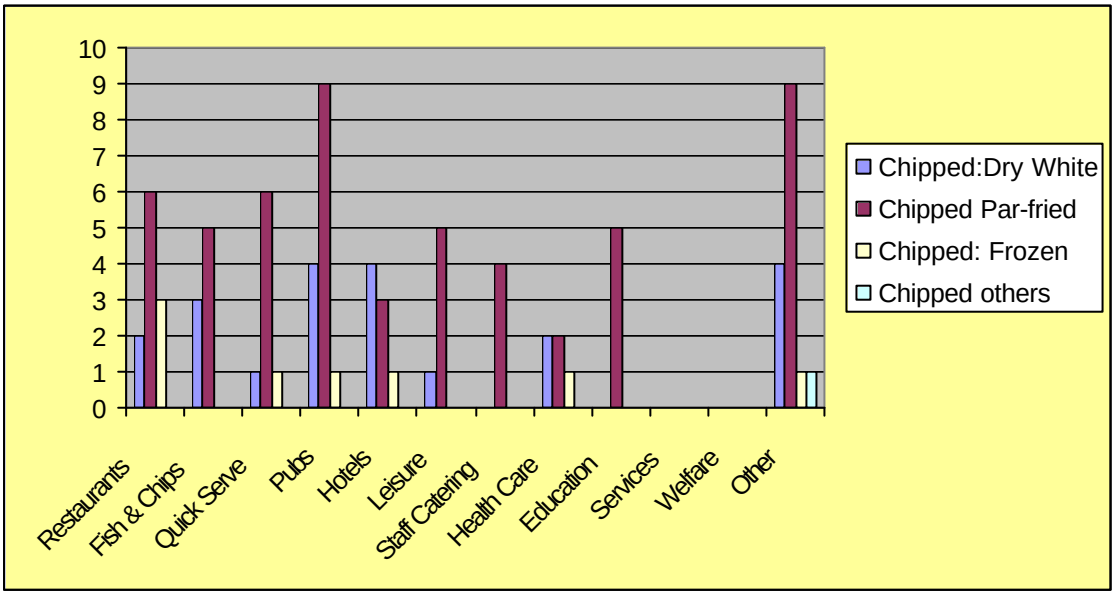
The following indicates the number of questionnaire respondents who are supplying fresh potatoes into different market sectors:



The following indicates the number of questionnaire respondents who are supplying chipped potatoes into different market sectors:



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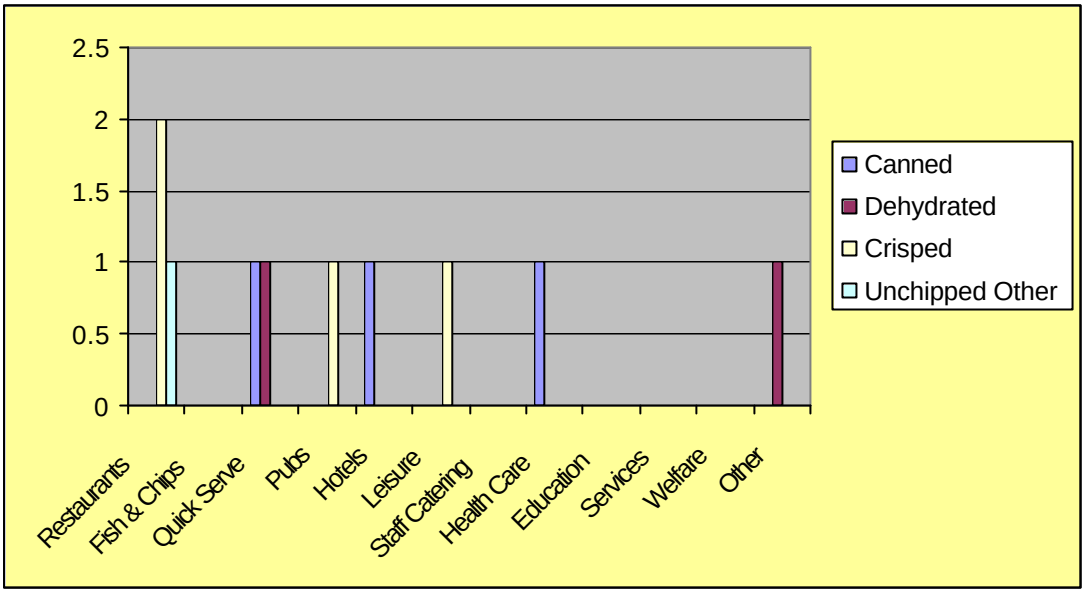
The following indicates the number of questionnaire respondents who are supplying other than fresh and chipped potatoes into different foodservice sectors



- From the above information, the levy payers who replied to this survey are mainly concentrated in supplying fresh potatoes to three major markets which are restaurants, pubs and fish & chip shops. A small proportion are supplying chipped, canned, dehydrated and crisped products.

- 148 levy payers said they would like to be kept informed of further work the BPC conducts on the foodservice market.

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Section 5

5.0 Recommendations

It is clear from the report that foodservice is a vast market with many potential operators and end users. As a major and growing market for potatoes, the sector is appropriate for BPC activity, but to have an impact this must focus on particular market segments.

The following identifies some key market segments the British Potato Council should be focusing on.

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1) The Chip shop sector July 2002- July 2003

What is the strategy?

"Maintain the usage of fresh potatoes by chip shops through ensuring that "best quality" British supplies are available to the market and maintain chip consumption through promotional activity and promoting a better understanding of generic chip benefits amongst consumers"

Why concentrate on this sector?

Importance of the sector within foodservice

Chip shop sector has a significant share of the "Foodservice" market

Importance of the sector for British potato growers/BPC levy payers

Approximately 10% of the GB potato crop is supplied into this market. Currently the chip shop market is valued at £700 million in sales value –a defendable market and structured such that it can be tackled within the scope of BPC resources.

Pressure from imports

Imports of both fresh potatoes and par-fried chips threaten this sector

Market Structure necessitates the role of an industry organisation to promote cohesiveness

Fragmented supply chain of chip shop industry would benefit from a cross industry organisation like the BPC to facilitate dialogue and implement practical strategies for the benefit of all in the supply chain.

How do we achieve the strategy? (**marks work in progress)

1) Through developing a series of codes of practice for the whole supply chain:

a) Chip shop educational pack (help promote an understanding of how storage and handling affect chipping quality)**
b) Grower and Merchant educational pack (help promote best practice amongst growers who supply the chip trade e.g. storage advice, information on dry matters, burn off times etc)

2) Through improving traceability in the chip shop supply chain (labelling, packing information)

3) Through investigating the introduction of a minimum "merchantable" quality potato standard **

4) Through developing a fry colour specification for the chip shop industry (similar to the processed/crisping industry) **

5) Through a chip shop "Promotional tool kit" (following on from BPC consumer research emphasis health, locality, meal solutions etc)

6) Through continued positive PR messages via Chip Week and other industry trade sources **

Vision?

Maintain the chip shop market based on 100% British potatoes (be that fresh, chilled, par fried) and create a barrier to entry for foreign product.

(N.B. please see appendix three which illustrates some of the work conducted by the BPC into understanding what are the "quality issues" chip shops face)

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2) School Catering sector July 2002- July 2003

What is the strategy?

"To raise understanding amongst school catering suppliers, school catering staff and school children as to the health benefits of potatoes and potato products within the government's understanding of a "healthy balanced diet and to actively encourage increased consumption of British Potatoes and potato products"

Why concentrate on this sector?

Government Attitude

Department of health/government have made it clear vegetables and starch products should play a major part in improving the diets of schoolchildren (Bangor Project)

Government Compulsory Standards –April 2001

Compulsory standards for primary and secondary school state that all school lunches must contain one item from the starchy foods group, includes: bread, potatoes, rice and pasta –how does BPC increase consumption of potatoes verses other carbohydrates?

Consumer Preferences/eating habits set at young age

Research suggests children's food consumption patterns are established in early life (National Heart Forum)

Widening scope of school catering market

More meals are being served within a school context. LACA (Local Authority Caterers Association) predict that secondary school catering facilities may well move to an "open all hours" type of service offering hot & cold foods, snacks and drinks from breakfast to supper. Hence there is opportunity for the frequency of potato purchases to be increased e.g. "potato wedges" as an afternoon school snack

Size of market

Approximately 3,531 million meals are served per year in the cost sector of which school meals account for approximately 1,196 million meals (Foodservice Intelligence)

Levy payer interest

BPC levy payer questionnaire highlighted this was an area levy payers supply into in terms of fresh and processed potatoes and it supports the work the BPC is doing with its educational website.

How do we achieve the strategy?

1) Nutritional workshop – educating key buyers for the school meals sector as to where potatoes can fit into Government meal guidelines and compulsory standards and how potato consumption can be increased against other competitor carbohydrate products such as pasta and rice. Workshop sponsored by McCain and planned for October 2002.**

2) Range of promotional mechanisms already up and running in the school catering sector which BPC could capitalise on to help increase awareness and sales of GB potatoes including: National School Meals week that runs every April.

3) Development of a BPC schools "Potato fortnight" –opportunity to get British merchants, growers already supplying schools to take part in a BPC run promotion with the objective of increasing sales by 5%.

Vision?

Develop the importance of potatoes in line with Government guidelines and standards and defend the role of potatoes in terms of a starchy/energy food.

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3) Key Foodservice Operators in the pub sector

What is the strategy?

"Develop relations with six key operators in order to gain a better understanding of the origins of current purchases and what parameters these operators set for buying potatoes/potato products with a view to influencing their purchasing behaviour".

Subject to evaluation of the above, the BPC will look to promote the versatility and health benefits of British potatoes and potato products to these operators with a view to increasing sales.

Why concentrate on operators in pub sector?

Buying Habits of Operators

BPC needs to understand the buying habits of operators in the industry so that they can be used as a point of strategy development for levy payers who are known from the BPC questionnaire to supply into this sector

Growing Market for potatoes

Since 1997 pubs have increased their usage of potatoes by 15%, mostly due to increases in the number of pub establishments serving food. It is believed the trend towards more pubs concentrating on both drinking and eating will continue (Foodservice Intelligence).

Threat of imports

Imports threaten this sector especially from the processed side

Chain orientated

Percentage of group owned outlets is more than 70% hence the ability to influence and effect change is greater within this context -BPC activity at a high level with relatively few operators could have a significant influence on volume of potato usage

Innovation and new product development

Emphasis on standardisation of different product offerings with a view to pubs differentiating themselves to their competition.

How do we achieve the strategy?

Year 1 July 2002 –July 2003

1) Further investigative research by BPC into understanding what the six major food operators seek from potatoes in terms of:

- Gross margin, profit
- What parameters they set for each meal occasion (major pub chains set these and then work with a distributor to fulfil their specification)
- Foodservice operators have stated their major reasons not to buy British are price and inconsistency of quality –what do they mean by this?
- BPC need to understand further the needs of foodservice customer –what are they looking for within a pub dining experience and how can we ensure that potatoes fulfil their needs more effectively than other substitute carbohydrates like pasta, rice and bread.

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Once the above has been reviewed there is a range of possible tactical ways forward for the BPC to promote the versatility and health benefits of British potato and potato products.

Vision?
To make the BPC's objectives known to major foodservice operators and distributors with the aim of reducing imports and raising domestic consumption

5.1 Conclusion

Foodservice is a growing market and its share of the "food pound" is increasing –more money in real terms will be spent on "eating out" this year than last.

Key to BPC activity in the foodservice sector is prioritising areas of importance and developing an understanding as to where the BPC can have a positive impact for levy payers and consumers. Outline strategies and recommendations have been developed for three main market segments (proposed earlier), all of which centre around positively influencing the industry with a view to increasing sales during 2002/2003.

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Appendix 1

Definition of Foodservice

The research covers group owned, tied, franchised, contractor operated and state/local authority controlled outlets as well as independent/freehouse operators. The following types of catering operation have been covered:

Hotels	Hotels, motels and holiday camps, guest houses and bed and breakfasts including star graded, budget and unclassified hotels.
Restaurants	Stand alone and in-store restaurants including: European, Ethnic, Theme/Concept, Others.
Fish and Chip Shops	Fish and chip cafes and takeaways
Cafes/Takeaways	Cafes/snack bars; ethnic take aways; hot food takeaways: baked potato chains.
Pubs	Pubs with restaurants; pubs serving bar food only; wine bars.
Leisure	Clubs; tourist attractions; leisure and entertainment venues; functions and event caterers.
Staff Catering	Places of work with staff catering facilities including offices, factories, retail outlets etc.
Health Care	Hospitals and homes including NHS, Local Authority and private outlets.
Education/	State schools; private schools; colleges; universities;

The following types of outlet were excluded primarily because they account for a small proportion of potato purchases:- Sandwich bars, Nursery schools, Mobile Vendors.

The fast food sector (Mac Donald's, Burger King etc) and travel sector is excluded from this report.

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Appendix 2

BPC FOODSERVICE QUESTIONNAIRE

This questionnaire will be treated in strict confidence and the information will only be used in a collated form

Company Name: _____

Your Name: _____

Position: _____

Telephone No: _____

Fax No: _____

Are you the best person to contact in relation to foodservice?
(if not please indicate the name of the appropriate person and pass on)

_____

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1. **Do you currently supply potatoes or potato related products to the foodservice market? (included in foodservice definition is fish & chips)**

   - ❑ Yes
   - ❑ No (please proceed directly to question 8)

2. **Please indicate currently what percentage of your total potato sales revenue is derived from foodservice business? (please tick the appropriate box)**

   - ❑ 100- 80%
   - ❑ 70-50%
   - ❑ 50-25%
   - ❑ 25-10%
   - ❑ Under 10%

3. **Please indicate currently what percentage of your total potato tonnage is sold into foodservice business? (please tick the appropriate box)**

   - ❑ 100-80%
   - ❑ 70-50%
   - ❑ 50-25%
   - ❑ 25-10%
   - ❑ Under 10%

4. **Please indicate what potato products you currently supply to the foodservice market (please tick as many boxes that apply)**

Fresh with skins:

- ❑ New/early
- ❑ Small/main crop
- ❑ Ware/main crop
- ❑ Bakers

- ❑ Whole peeled potatoes

Chipped:

- ❑ In dry white
- ❑ Par-fried/chilled
- ❑ Frozen
- ❑ Others

Other potato products that are not chipped

- ❑ Uncooked: fresh _____
- ❑ Frozen _____
- ❑ Cooked chilled _____
- ❑ Cooked: frozen _____
- ❑ Others, please specify _____

- ❑ Canned
- ❑ Dehydrated
- ❑ Crisped

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- ❑ Other, please specify _____

5. Please indicate the method by which you deliver your potato products to the foodservice market (please tick the appropriate box)

- ❑ Directly
- ❑ Through merchants
- ❑ Through frozen food wholesalers
- ❑ Through grocery wholesalers
- ❑ Through chilled wholesalers
- ❑ Contract/In house
- ❑ Cash & Carry
- ❑ Other source, please specify_____

6. Please indicate the major market into which your potato products are sold (more than one box may be ticked)

	Restaurant	Fish &Chip	Quick Serve	Pubs	Hotels	Leisure	Staff Catering	Health CareCare	Education	Services	Welfare
Fresh with skins: new/early											
Fresh with skins: Small/main crop											
Fresh with skins Ware/main crop											
Fresh with skins Bakers											
Whole Peeled Potatoes											
Chipped:											
In dry white											
Par/fried/chilled											
Frozen											
Others, specified											
Other potato products that are not chipped											
Uncooked: fresh											
Frozen											
Cooked: chilled											
Cooked: frozen											
Canned											
Others, specified											
Dehydrated											
Crisped											
Canned											
Other, specified											

7. From your company's point of view how would you rate the following issues regarding the foodservice market on a scale of 1 to 5 (1 being the least critical and 5 being the most critical to your business):

- ❑ Continuity of supply of potatoes
- ❑ Quality of potatoes
- ❑ Fluctuations in the price of potatoes

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- ❑ Price competition from overseas
- ❑ Adhering to industry standard specifications
- ❑ Assurance schemes
- ❑ Lack of customer loyalty
- ❑ Limited buyer potato knowledge
- ❑ Lack of understanding on correct varieties
- ❑ Managing supply chain relationships effectively
- ❑ Lack of knowledge of the sector and/or market place
- ❑ Other, please specify_____

_____

_____

8. During consultation with a number of levy payers operating in foodservice, the following have been identified as suggested areas where the BPC could be of positive benefit, please rank on a scale of 1-5 your agreement (1 being an area of lowest priority for the BPC and 5 being the highest priority area for the BPC):

- ❑ Provide an understanding into buyer habits
- ❑ Provide links to potential suppliers
- ❑ Educate buyers on correct varieties, specifications, uses
- ❑ Provide consumer research information on the foodservice market
  Work with industry members in developing industry standard specifications
- ❑ Provide information on market dynamics (price elasticity, trends, statistics)
- ❑ Other, please specify

_____

_____

_____

_____

9 As further investigation into the foodservice market is carried out by the BPC and more areas of opportunity are identified, please indicate if you would like to be updated on these.

- ❑ Yes
- ❑ No

Please kindly return this questionnaire in the reply paid envelope or fax it back to Kay Hogg on

Fax Number: 01865 782254 or
Telephone Number: 01865 782227
E-mail: khogg@potato.org.uk

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Appendix 3

Chip shop questionnaire results

Questionnaire and survey results

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BPC Chip Shop Questionnaire Results 2002

As part of the on-going Chip quality work a questionnaire to better understand chip shop potato requirements and usage was developed by the BPC.

This questionnaire was circulated to over 8,500 Fish & Chips in the UK during April 2002 and the below results are based on a response rate of approximately 10%.

For any further information on the results of this questionnaire or any other queries relating to fish & chip shops contact Kay Hogg on Tel: 01865 782227 or e-mail: khogg@potato.org.uk

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SECTION ONE –YOUR BUSINESS

1) Where do the majority of your customers eat their fish & chips?

On the premises	19	2%
Take away from shop	698	78%
Both	175	20%

2) Which of the following best describes your business?

Traditional Fish & chips	384	40%
Fish & chip shop which sells other products i.e. burgers	489	51%
Chinese take-away which sells fish & chips	29	3%
Kebab shop which sells fish & chips	9	0.9%
Pizza outlet which sells fish & chips	8	0.8%
Indian take-away which sells fish & chips	4	0.4%
Fast food outlet selling a number of products including fish & chips	33	3.4%

3) Please indicate the following by ticking one box

I am an independent shop	796
I am part of a group of chip shops with less than three shops	62
I am part of a group of chip shops with more than three shops	34
Other, please specify	No comment

4) In the last 12 months what percentage of the following potatoes/potato products have you used in your shop (e.g. 100 Fresh British)?

Fresh British Potatoes	782 respondents	95%
Fresh Prepared chips	36 respondents	4.5%
Frozen chips	3 respondents	0.36%
Par fried chips	4 respondents	0.12%

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5) Please indicate why you use what has been indicated in question 4

Those that stated they used 100% fresh British tended to do so because:

1) Customer expectations demand they use fresh (traditional fish & chips =fresh potatoes)
2) Because they produce the best taste: "Fresh is best"
3) Because of good past experience
4) To support local farmers, help the British economy
5) No additives or preservatives hence more natural: the most "Fresh, natural and economical choice"
6) Ability to sample before purchase
7) Easier control of product and costs

While cost played a significant role in influencing why chip shops choose to use 100% fresh British potatoes it was by no means the only reason, quality, freshness, aiding local and British agricultural industry were also key drivers for usage.

Those that stated they used par fried tended to do so for the following reasons:

1) Convenience
2) Traditional fresh chips take too long to prepare

Those that stated they used fresh prepared chips tended to do so for the following reasons:

1) Lack of staff to prepare fresh potatoes properly
2) More consistent and reliable than fresh
3) Better quality
4) Better finish than fresh potatoes
5) Saves labour and equipment costs

No one stated they used frozen chips in the questionnaire

6) What is the highest/lowest price paid for your British Potatoes over the past 12 months?

Somewhat mixed response highest prices ranged up to £12.00 per bag with lowest prices down to £1.00 per bag.

7) Where do you purchase your potatoes?

From a single merchant	647	69%
From less than three merchants	184	19.7%
From three or more merchants	22	2.4%
Direct from one grower	40	4.2%
Direct from several growers	17	1.8%
Direct from cash & carry	10	1.1%
Direct from the wholesale market	10	1.1%
Other, please specify	4	0.4%

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SECTION 2 –YOUR REQUIREMENTS/ISSUES

1) What is your preferred variety?

Maris Piper	869
Desiree	4
Maris Bard	98
Bintje	7
Estima	19
Premiere	23
Wilja	10
Not sure	4
Other	37
Total	1071

Other, please specify
Some of the other more common varieties mentioned were Fambo, Dunrod, King Edwards, Cara, Victoria, Kerrs Pink

2) Why is this your preferred variety?

This is what my local merchant supplies me	107
This gives me the most consistent quality chips	798
This is the cheapest variety I can buy	7
I know that other fish & chip shops use this variety	25
Other, please state	21

3) Are you aware of who has grown the potatoes you are supplied?

640 said “Yes” with 265 saying “No”

4) Do you consistently fry your chipping potatoes to a particular “fry colour”?

All of the time	401
Most of the time	441
Not much of the time	38

5) How do you specify fry colour?

Using a USDA chart	6
Using my own knowledge of what my customers like	852

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6) How important do you believe the following quality factors are?

	Top Importance
Final Flavour of the chips	23%
Low level of defects	19.7%
Final Texture	19%
Sugar	17.3%
Fry colour	14%
Size	7%

All of the above factors are important for respondents, only a handful of respondents rated all these issues as not critical for success. Taste it is believed is the major factor that drives consumer demand with young people on the whole indicating that they want less soggy, greasy chips which are not too dark in terms of fry colour. Ability to have a low level of defect (bruising and greening) especially is a key requirement for chip shops.

When asked to comment about other important quality issues the following answers were given:
Inconsistencies in the quality of Maris Piper
Too much size variation
Growth splits inside the potato
The ability to hold up in the chip box
Odd shapes not being able to rumble well

7) With regards to the quality of potatoes you expect to receive, please fill in the following gaps:

Generally responses indicated a weak understanding about size, sugars and dry matters and the relationship between sugars and dry matters and their influence on fry colours.

8) How important do you believe the following supply factors are when buying potatoes?

	Top Importance
Continuity of supply of potatoes	30%
Ability to return poor quality potatoes	26%
Reputation of merchant	13%
Frequency of deliveries	13%
Ability to trace where potatoes come from	7%
Knowing whether my merchant has conducted a fry test or not	6%
Ability to buy from a number of merchants	5%

Continuity and consistency are the main priorities for chip shops but equally the ability to buy from someone they trust is also important.

9) Please tick which box best describes your current buying habits of potatoes

I buy the cheapest potatoes available	6
I shop around for the best price when buying potatoes	44
I am prepared to pay a fair price for the best quality of potatoes	857

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10) In order to receive best quality, some fish and chips are willing to pay a premium, what premium if any would you be willing to pay?

Amount	Number of Respondents	Percentage
Nothing	97	11%
50p	138	16%
£1.00	314	37%
£1.25	33	3.8%
£1.50	93	10.8%
£2.00	129	15%
More	54	6.3%
Total	858	100%

761 respondents (89%) said they would be willing to pay more for best quality

11) Some people suggest that more information should be included on a potato bag to help fish & chip shops make more informed decisions

The information I receive on potato bags is sufficient	366
I would like to see more information about correct storage methods of potatoes on the bag	219
I would like the name/contact details of who has grown the potatoes more clearly displayed	310
I would like more information about the variety I am buying	294
Other, please specify	

Other suggested comments included:

- When the crop has been harvested and how long the potatoes have been in store
- Size information on potatoes
- Date potatoes packed/sell by date
- Sugar content
- Dry matter
- Soil type
- Organic/non-organic
- Guaranteed storage
- A quality grading symbol on the bag from 1-5 so the purchaser can buy the potatoes off the grading guide and priced accordingly
- A method of knowing what is in the bag such as a scale from 1-10
  10/10 = the best, no green or damage good size etc, best taste
  6/10 = not bad, some work to do will fry reasonably
  3/10 = not too good, higher sugar less dry matter more work
  1/10 = you "

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12) How do you store your potatoes on arrival in your shop?

On a pallet away from the walls in a cool environment	416
On pallets in a cool environment	397
Not on pallets but in a cool environment	60
Not consistently stored in a particular place	3
Other, please specify	24

Other included:

- In a shed out building
- Fridge
- Cool larder
- Stored in hopper before use
- Purpose built potato store

SECTION THREE –GENERAL BPC INFORMATION

1) Please tick which of the following applies

I have heard of the BPC	755
I currently read BPC's "Eyewitness Magazine"	38
I have accessed the BPC's website	59
I have taken part in National Chip week promotions	239
I currently read the BPC's Potato/Price Weekly	27

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