Berry Scotland Newsletter

Number 4 **February 2004**

Berry marketing takes a step forward

The new year was greeted with news of funding to support a marketing and promotion co-ordinator for the Berry Scotland Programme from Spring 2004 for one year initially.

The Programme Board realised that one way forward in the effort to increase consumption of soft fruit in Scotland lay with marketing and product development. Five different areas are seen as important i.e. fresh berries, frozen berries, new products (desserts), drinks and public sector activities (schools and health campaigns). It is proposed that the marketing co-ordinator will be responsible for firstly, investigating where and how Scottish soft fruit is used, auditing any marketing work already undertaken and identifying approaches that can be used in the future for all five areas above. In addition product development will be an important part of the role to encourage small food companies to innovate with new healthy berry-based products.

Investigation of marketing opportunities requires close co-operation with growers as well as food companies and it is important that the marketing co-ordinator is able to hear a wide range of views and ideas for different promotion and marketing approaches. Scottish Enterprise will be involved with many aspects of this post to ensure maximum use of resources and expertise.

The long term aims of the Berry Programme are to create an inter-sectorally linked organisation that promotes and facilitates a permanent rolling programme of research and promotion for the benefit of the economy, the berry industry and of course the health of the population.

(not real products)

Berry Research at the Rowett Research Institute, Aberdeen

The reason we are working on the potential health benefits of berries is best described by the "mission statement" of the Rowett Research Institute which is "to define how nutrition can prevent disease, improve health and enhance the quality of food production in agriculture". Basically this means we want to persuade people to eat foods which will reduce their chances of getting diseases such as heart disease and cancer.

At the moment one of the best ways of doing this is to eat lots of fruit and vegetables. However many people find the current advice to eat 5 or more portions a day quite daunting. Our approach therefore is to identify potentially protective compounds in plant products and understand how they work in moderating the cancer process. We can then not only inform people which fruits and vegetables are the most appropriate but also suggest to producers which varieties to grow for maximum health benefit.

To date, in a project funded by the Scottish Executive Environment and Rural Affairs Department, we have found that berries contain a range of interesting compounds. In particular, berries are a rich source of anthocyanins. Some of these appear to protect DNA from damage in experimental systems. As this process is regarded as a key event in the development of cancer, we are currently assessing whether regular consumption of berry juice gives similar protective effects in humans. It would be good to eventually be able to say "eat 5 or more portions of fruit and vegetables and make sure that this includes berries!".

Dr Garry Duthie,
Head of Phytochemicals and Genomic Stability Group, Rowett Research Institute, 2nd February 2004

Profile: Annie Anderson

Professor of Food Choice

Every issue we feature one of the Berry Scotland Programme board members.

Professor Anderson is Director of the Centre for Public Health Nutrition Research at the University of Dundee. She is responsible for the day to day supervision of the Berry Scotland Programme as both Scientific and Marketing Co-ordinators are based at the Centre. Her other research interests focus on the impact of dietary selection on human health, factors that influence food choice and dietary assessment methodology. Diet and health inequalities are also a major theme of recent work.

Professor Anderson is an expert member of the UK Scientific Advisory Committee on Nutrition and the Scottish Executive panel on school meals. She is also a major player in the formation of the new Institute for Cardiovascular Research (TICR) in Dundee. This is now an important multi-disciplinary research centre investigating prevention and treatment of disorders such as heart disease, stroke and peripheral vascular disease.

Professor Anderson

berry scotland

Our aims are to encourage an increase in consumption of Scottish berries for the benefits of population health and the Scottish berry industry. The Berry Scotland Programme Board brings together experts from a number of professions. They are: Professor Annie Anderson, Centre for Public Health Nutrition Research, University of Dundee; Professor Mike Lean, Human Nutrition Department, University of Glasgow; Andrew Logan, Grower (Scotfruit); Hector MacLean, Expert in Rural Diversification; Ronnie McNicol, Breeder (Redeva); Ewan Pate, Grower (Saltire Fruits); Anne Thomson, Marketing Consultant (Gallagher Associates) and Processor (Ella Drinks Ltd).

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News from SCRI...

At SCRI, research is underway to find out more about the health benefits of soft fruits. Experiments by Derek Stewart's group on bioactive compounds from soft fruit have shown that some of the phenolic compounds are capable of inhibiting enzymes that digest starch (α-amylase and α-glucosidase). All berry extracts tested inhibited both of these enzymes, although there was a ten-fold difference between the least and the most effective extracts. Strawberry and raspberry extracts were more effective α-amylase inhibitors and conversely, blueberry and blackcurrant extracts were more effective α-glucosidase inhibitors.

A comparison of the levels of phenolic compounds in the berry extracts suggested that inhibition of α-glucosidase, but not α-amylase, was related to the anthocyanin content of the berries. For example, blueberry and blackcurrant extracts, which have the highest anthocyanin content, were the most effective inhibitors of α-glucosidase. The extracts most effective in inhibiting α-amylase (strawberry and raspberry) contain appreciable amounts of tannins. Indeed, extracts from red grape, red wine and green tea, which are particularly enriched in tannins, were also effective inhibitors of α-amylase. The removal of tannins from strawberry extracts also removed the α-amylase inhibition.

Further studies showed that isolated raspberry anthocyanins were more effective against α-glucosidase than the original raspberry extract. Conversely the α-amylase inhibitory activity was shown to be predominantly derived from the ellagitannins, complex polyphenolic sugar conjugates.

Perhaps a reduction in starch digestion with fruit consumption could lead to a reduction in the release of free sugars thereby alleviating, to a small degree at least, problems related to high sugar intake, glycaemic index and ultimately cardiovascular disease. This is obviously in addition to the inherent antioxidant and pharmacological abilities of the fruit constituents.

Dr Derek Stewart,
Head of the Bioactive compounds group, SCRI, Dundee.
10th February 2004

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