



**Issue 9: November, 2020: This e-bulletin is aimed at health professionals, consumers, growers, farmers, packers, processors, distributors, retailers, and others in the plant foods area.**

## **Bramleys are goodness!**

Bramley's Seedling, known as the Bramley apple or Bramleys is usually eaten cooked due to its acidity level and tannin content. It is arguably the best dessert (cooking) apple in the world and makes an excellent stewed product or as a filling for apple pie or similar baked goods. Also, a few slices eaten uncooked refresh the palate after a meal. Bramleys are large green apples, typically 400-500g, with a mild red flush on one side. Internal colour is white but the stewed product has an attractive light golden colour and a fluffy texture with excellent mouthfeel.

### **The Irish connection & shop local**

Bramleys had their origin in Southwell, Nottinghamshire, UK in 1809 and are largely considered a UK apple variety. Bramleys from County Armagh enjoy *Protected Geographical Indication* status within the European Union because of their exceptional quality and tarter taste than those grown in England. Bramleys are also grown in a number of other locations in Ireland and especially in North County Dublin. Consumers are increasingly aware of where their foods are produced and in this context Bramleys tick all the boxes i.e. they are produced locally - - down the road - - and are delivered to retailers on a daily basis. Irish grown Bramleys are available year round thanks to excellent controlled atmosphere cold stores that keep the apples in prime condition.

### **Health properties**

'An apple a day keeps the doctor away' – an old and wise saying that has been underpinned and supported in recent years by scientific facts. The saying applies equally (or even more so) to Bramleys in common with other apple varieties.

**Cholesterol reduction - the role of pectin:** Pectin is one of the main components of fruit cell walls and is also a dietary fibre. Bramleys have an excellent pectin status as evidenced by their crisp texture which is maintained in stored fruit. A large clinical trial has shown that two apples a day reduce total cholesterol; in addition they increase the amount of 'good' cholesterol (HDL) and lower the amount of 'bad' cholesterol (LDL) (Gormley *et al.*, 1977). The cholesterol lowering effect was about

0.5mmol/litre (e.g. from 5.5 to 5.0mmol/l) and was attributed to the pectin content of the Golden Delicious apples used in the trial. This finding has since been confirmed in a number of other clinical trials with apples (Dragsted & Gormley, 2010). Research by Durrington et al.(1976) has shown that administration of large doses of pectin reduced cholesterol in humans. Detailed information on cholesterol is available from The Irish Heart Foundation.

(<https://irishheart.ie/your-health/ways-to-live-better/cholesterol/>)

**Anti-inflammatory properties:** Free radicals are atoms/molecules that have an unpaired electron and as such are highly unstable. Therefore, they seek an electron to enable them stabilise and if they get it from the human body this causes inflammation which when chronic is a component of many diseases including cardiovascular, neurological and pulmonary diseases, also cancer and diabetes (Biswas *et al.*, 2017); Covid-19 is also an inflammatory disease. Our bodies produce millions of free radicals daily as part of body chemistry and they need to be quenched before they cause oxidative stress and inflammation. The immune system helps greatly in this regard but needs support via antioxidants such as the range of tannins in Bramley apples. Tannin content of Bramley juice is circa 0.30% (plus more in the apple tissue) and is among the highest of most apple varieties with the exception of those used for cider production (Ayres & Fallows, 1951). Tannins are complex polyphenolic compounds and are powerful antioxidants and anti-inflammatories (Khanbabaee & van Ree, 2001; Roessle *et al.*, 2010). Those in Bramley include chlorogenic acid, phloridzin, (-)epicatechin and procyanidin B2.

## **Sensory properties**

**Bramley flavour:** Flavour comprises taste and aroma. The unique taste of Bramleys is due to their high acidity (pH 3.2-3.4) (predominantly malic acid) and their tannin content; the latter supplies astringency. Aroma compounds also contribute to the flavour experience and studies on the aroma compounds in Bramleys during cooking indicated that alcohols were prominent together with hexanal and some esters. However, by the end of cooking 2-furfural was the predominant aroma compound (Nursten & Woolfe, 1972).

**Stewed Bramleys:** One apple provides four dessert portions with weight data and cooking conditions as follows: raw apple (450g); post peeling, coring and slicing (370g); post 20g sugar addition and microwaving (7min) (372g); post 60ml boiling water addition to achieve desired consistency (430g). Cool (45min) at room temperature and transfer to fridge (2-5°C) until required for consumption. Microwaving was the cooking method of choice due to its minimal deleterious effect on nutrients. It was interrupted briefly three times over the 7min duration to

allow mashing of the slices. Serve with a blob of cream, custard or other accompaniment. Stewed Bramleys have an attractive light golden colour, a creamy fluffy texture and an excellent mouthfeel. They are especially suitable for children who may be reluctant to eat whole fruit.

**Apple pie:** Bramley slices are uniquely suitable for inclusion in apple pies, apple crumbles or apple cakes and provide a 'flavour kick' not found with other apple varieties.

### **Commercial processing**

Bramley slices lend themselves to canning and freezing. Slicing must be rapid followed by blanching in steam or water (98°C; 4-5min) to avoid oxidative browning. For canning, the blanched slices are packed tightly (solid pack) into large cans, topped-up with water (100°C), lids seamed, and then heated at 100°C (time depends on can size) in a canning retort. When required for use the cans are opened, inverted, and the apples slide out in 'sandcastle' form. The canned product can be used for pie fillings and other applications. With freezing the blanched slices are cooled in ice-cold water, drained, packed in plastic bags, air-blast frozen (-35°C; freezing time depends on bag size) followed by storage at -30°C until required for use.

### **Conclusions**

Bramleys are cooking apples with a unique and excellent flavour. They have the ability to reduce cholesterol in humans via their pectin content. They also possess strong anti-inflammatory properties which are key aides to the immune system in supressing free radicals which damage mucous membranes and lead to chronic inflammation and disease. Stewed Bramleys have an excellent flavour, an attractive colour with accompanying smooth mouthfeel. Sliced Bramleys make an excellent apple pie or as components in other baked goods. Finally, include Bramleys in the diet on a frequent basis; they provide an excellent flavour experience and will contribute positively to overall health.

### **References**

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