

# Crunch time for apples?

Though much reduced from its Victorian peak, the British apple industry is enjoying a revival. But, ask **Matthew Ordidge** and **Tim Biddlecombe**, how rosy is its future? Photography by Neil Hepworth

**EVEN IN 2010** – the 150th anniversary of Robert Hogg’s *The Fruit Manual* (see pp694–697) – the world of fruit is still developing. Headlines about declining numbers of orchards in the UK are frequent, and it is true that the area of cropping for most fruit has decreased significantly: commercial orchards in the UK have reduced from 62,200ha (153,700 acres) in 1997 to 16,788ha (41,500 acres) in 2009.

Although fruit grown in Britain is now widely purchased in preference to imported apples, less than 30 percent of apples eaten in the UK are grown here. So how secure is the supply of British apples? In the last decade the acreage of dessert apples reduced by around 30 percent, yet, paradoxically, production rose by around 20 percent to more than 118,000 tonnes.

This is because older, less-productive orchards in marginal fruit growing areas have been removed and new, more intensive plantings have more than compensated: in fact the total area of apple (primarily cider) orchards increased by 1.7 percent over the last two years. The potential impact of the loss of old orchards on biodiversity has been recognised. Old, traditionally managed orchards support diverse and specialised wildlife communities and are now recognised as valuable wildlife habitats, recently gaining protected status.

## Apples in the UK

There are many positives for apple growing in Britain. Wider awareness of healthy eating, the Fruit for Schools programme and interest in local produce all promote ‘home grown’. There is an increased emphasis on improving eating quality, reducing pesticide use and extending the season, but to have the confidence to invest in new orchards, growers must be repaid with reasonable and consistent returns.

New cultivars play a part: in recent years ‘Cameo’, Jazz (‘Scifresh’), ‘Kanzi’ and Rubens (‘Civni’) have appeared on the shelves, from commercial breeding programmes overseas. Together with ‘Gala’ and ‘Braeburn’, these all combine consistently high yields with good eating quality. Cultivars bred in warmer climates tend to mature late in the UK – their harvest is often not until October and November, when frost damage can occur and pickers can be more difficult to find. Flavour development, however, is often better in the UK than abroad, and new cultivars bred for our climatic conditions, especially if they matured in August and September to start the UK season, would be valuable.

Novelties such as red-fleshed fruit, and pink or yellow skin, offer added interest, and new, disease-resistant trees have great potential for orchard

management. Growers are improving efficiency, with practices such as mechanical pruning and root pruning adding to systems aimed at lowering labour and pesticides.

## The future

With concerns about the changing climate and the challenges of providing food security, resources that can support UK fruit production into the future are increasingly important. The National Fruit Collection at Brogdale, Kent, which is owned and supported by the Department for Environment, Food and Rural Affairs, is a significant international resource, offering a wide range of fruits to the research and breeding community (as well as potentially valuable existing cultivars that may be of immediate interest to the commercial sector).

Among the 3,500 accessions in Brogdale’s collections are many historic fruit cultivars. The 2,200-strong apple collection includes more than 100 of those featured in Hogg’s original book, alongside more modern selections.

The University of Reading and Farm Advisory Services Team Ltd (FAST) are

responsible for the scientific curation and maintenance of the collection at Brogdale. Together they conserve and make available the traits and characteristics of the collection’s plants. In recent years a number of international agreements have recognised the value of genetic resources; Brogdale material is now made available around the world as part of the UK’s commitment to the International Treaty on Plant Genetic Resources for Food and Agriculture, drawn up by the Food and Agriculture Organization of the United Nations.

## Appliance of science

Knowledge of fruit has developed dramatically since Hogg’s day. Although many accessions in the Brogdale collection have been verified as ‘true to type’ by direct comparison to the descriptions in Hogg’s book (and more recent works of Bunyard, Hedrick, Leroy and Taylor), scientists at Reading University are now using genetic fingerprinting to check that re-propagated trees are correctly labelled. Further analysis aims to describe the genetic diversity and relationships within the apple collection, and develop

potential ‘marker’ genes for desirable traits to use in breeding and research.

What would Hogg have made of these scientific developments? An international group of scientists has just published the first apple genome sequence. Recent developments in genetic modification technology has provided researchers in the USA with rapid-flowering new hybrids that could allow breeders to reduce the generation time to a single year, by introducing a rapid-flowering gene, originally from *Populus* (poplar). If promising new selections are raised, this gene can be removed in the later stages. Meanwhile, at Brogdale, cryo-preservation of dormant cuttings at -193°C is being used to add further security to the living collections – as a backup to insure against losses from pests, disease or disaster.

## Information technology

Data on the collections is increasingly available online; Brogdale’s website is collating data from its curatorial work. Digital photographs replace the watercolours of old tomes – though lacking the romance of the originals, they make

images more widely available – Hogg and Bull’s *The Herefordshire Pomona* (1878–1884) only ran to 600 copies, but is now available on CD, through the Marcher Apple Network.

Would it not be fascinating to know what Robert Hogg’s reaction would be to *The Fruit Manual* being available on Google books? ■

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**NATIONAL CURATORS** In charge of 2,200 apple cultivars at Brogdale (below) are Tim Biddlecombe (left) and Matthew Ordidge (right)



## APPLE TRIVIA

- Apples are thought to have originated in central Asia, and seem to have been in cultivation for more than 4,000 years
- They have been grown in Britain since at least the Roman occupation
- Henry VII ordered the first large-scale orchards to be planted at Teynham, Kent
- ‘Cox’s Orange Pippin’, the UK’s favourite apple, makes up more than 50 percent of the country’s area of dessert apples
- About 10 percent of an apple is carbohydrate; 4 percent is various vitamins and minerals; the rest is water
- On average, women in Norfolk aged 24 to 34 eat the most apples, around one a day. Young adult men eat almost none
- People with a birch pollen allergy can also be allergic to apple fruit