

## THE STORY OF BALLERINA APPLES

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Many major leaps forward in plant development have resulted from natural sports. Ballerina apple trees are no exception and it was an observant Polish-Canadian fruit grower called Wijick who, in the early 1960's, spotted a sport growing on a 'Macintosh' apple tree. The particular sport was instantly recognisable. Instead of the normal well branched shoot, it had short internodes and lateral buds developing in short spurs, rather than extension shoots. Fortunately, part of the shoot he passed to the local experiment station multiplied and ultimately pollen was sent to East Malling Research Station in England where a breeding programme was started in the early 1970s by Kenneth Tobutt. In 1976 Ken Tobutt raised about 10,000 seedlings and, to date, about ¼ million seedlings have been raised. In 1977 they were screened for field resistance to scab and mildew and for the columnar habit. About 500 of the best were selected. Between 1980 and 1984 these were grown on and assessed for quality, ease of propagation, and ornamental quality. During 1984, 20 of the best were accepted for replicated trials and it is from these that today's four cultivars were chosen. A unique feature of the original sport is the dominance of the upright habit—approximately 50 percent of the resulting seedlings continued to show the columnar habit.

In 1986 Plant Breeders Rights were granted to the National Seed Development Organization (NSDO), the government-owned company responsible for marketing all plants raised on government establishments. In 1987 as part of the government's privatisation programme, NSDO was sold to Unilever and now trades as PBI, Cambridge, Ltd.

At this stage, many British nurserymen feared that these exciting new cultivars were going to follow the route of so many British innovations and be exploited by other countries. Thankfully a consortium of four growers won a contract to market the trees throughout Europe and these four companies, including Anglia Nurseries, Blakedown Nurseries, Farplants, Ltd., and Notcutts Nurseries, Ltd. formed a joint company with PBI, each owning equal shares.

**Market Research.** The first decision the consortium made was to carry out an in-depth programme of market research to ascertain reaction of the public to its trees. Over 1,500 people were interviewed in two separate studies. The trees created a huge amount of interest.

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Before seeing them many gardeners cited lack of space as the main reason for not having an apple tree. A large number were also put off by the worries about pruning and the shade traditional trees cast.

Before seeing Ballerina apple trees 80 percent of those interviewed did not intend to buy an apple tree; after seeing them, 62 percent were interested in buying the tree. They, therefore, have the potential to treble the existing amateur fruit apple market.

The trees are unique because of their very tight columnar habit, growing like a natural cordon without branches. The apples grow on spurs on the stem. Potential use of the trees is immense with the main attraction for the private garden being that they occupy little space and will need little or no pruning.

**Naming.** Good products need good names and the consortium felt it was essential to produce a generic name which could be protected and produce cultivar names that were easily remembered and could have a common link. Ballerina was chosen as the group name and is being registered as a trade mark throughout Europe and the world. Dance names were chosen as the cultivar names of the apples, and 'Maypole' as the name of the ornamental crabapple.

For various reasons the consortium decided to exploit the UK market first followed by France and Western Germany; 120,000 trees were produced in the UK in the first year, quite a significant decision as the retail value of this number was over £2m.

The trees take some three years to produce so numbers for the second and third years had to be decided before the first tree was despatched. Sales figures of 170,000 in the second year and over 200,000 the third year were projected so a production commitment was made to £8.5m worth of trees at retail value before the first tree was despatched.

**The Launch.** Chelsea Flower Show 1989 in England was fixed as the launch pad to the retail public, when Mark Rumary, Notcutts landscape designer was employed to design a stand to exploit the benefits and uses of the trees.

The main benefits are:

- space saving—no garden is too small;
- little or no pruning—easy to spray;
- heavy cropping—very high yield for space taken;
- attractive—they look good, stay neat and create minimal shade.

The main uses are: in lawns and borders as specimen plants; as a hedge between ornamental and vegetable gardens; in groups to form a mini orchard, and in pots or troughs on patios or balconies.

The Chelsea exhibit was awarded a gold medal and orders for 4,000 were sold at the show. Over 90,000 trees were ordered by garden centres through the U.K. within two months of the launch.

Cultivars—

- ‘Bolero’: Shining green apples with a golden pink blush. Pick and eat early to mid-September. Crisp and juicy. Attractive white blossom flushed with pink from early to mid-May.
- ‘Polka’: Bright red/green apples of excellent flavour. Pick and eat from late September. Deep pink and white blossom in early to mid-May.
- ‘Waltz’: Sweet, red/green apples. Pick and store from early October. Apples keep for several months in cool conditions. Purplish pink and white blossom early to mid-May.
- ‘Maypole’: Masses of beautiful carmine flowers from early May for two weeks, with attractive bronze-coloured leaves followed by large purple-red crab apples through the summer, maturing in mid-September.

**Propagation and production.** These trees propagate as easily as any other apple tree, with good bud takes on MM106 rootstock. The main problem is obtaining sufficient budwood because of the extremely short internodes. The wood is very thick so they need to be budded on good-sized stocks planted at a minimum of 8 mm girth in the spring.

The problem of the low yield of budwood is being solved by growing mother trees in the glasshouse, which is extending the internodes and, of course, the growing season. The average yield of buds from a mother tree has been approximately 20 to date, but in the glasshouse this can easily be doubled.

Because of their upright nature, it is critical that they are budded onto stocks that are upright; bud guides are also used to ensure that there is an upright union. They must be potted right in the centre of a pot and must be handled with care. Because of the unique feature of buds being formed on the trunk, it is critical that the trees are handled below the bud union at the potting stage, and after potting we encourage the staff to handle by the pots only.

**The future.** Ballerina trees has recently signed an agreement with East Malling Research Station for the rights of future columnar trees produced at East Malling Research Station and currently it is bulking up a new cooking cultivar and is considering the introduction of a ‘Cox’ seedling. Ballerinas will be offered for sale in France during the 1989-90 season and will be available in Sweden and Holland during 1991-92. Contracts for marketing the trees in Belgium, Denmark, and West Germany are currently being negotiated. The rights for marketing the trees outside Europe are held by PBI, Maris Lane, Trumpington, Cambridge. CB2 2LQ.