



Agriculture & Horticulture
DEVELOPMENT BOARD



Grower Summary

SF 41c

Raspberry: summer fruiting
variety trial

Annual 2012

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HDC is a division of the Agriculture and Horticulture Development Board.

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Project Leader:	Janet Allen
Contractor:	ADAS
Industry Representative:	Tim Place, Place UK Ltd
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Headline

Ten new raspberry varieties examined have potential to extend the harvest period or to replace current UK commercial summer fruiting raspberry varieties.

Background

Currently three summer fruiting varieties, Glen Ample, Tulameen and Octavia dominate the industry. These varieties enable UK growers to produce quality fruit under protection from May to late July.

Problems with susceptibility to pest or disease and imperfect fruit quality (in the case of Tulameen) elicited this evaluation of new varieties and advanced selections of summer fruiting raspberries. The intention is to identify varieties which will provide high quality fruit over extended periods and display some, and hopefully all, of the following attributes:-

- High yields
- Reliable cropping
- Firm berries with a long shelf life, which have a good flavour and texture
- Attractive berries (colour, shape, size) which are easy to pick (i.e. well displayed on the plant and easy to detach)
- Plants which are robust, easy to manage and ideally resistant to, or at least have good tolerance of, the major pests and diseases that affect this crop

With these parameters in mind this HDC Summer Fruiting Raspberry Variety Trial (SF 41c) was planted during the summers of 2009 and 2010.

Results of the variety trials

The following information summarises the results. Refer to the 'Science Section' for full and comprehensive information on the results.

Replicated plots of eight new summer fruiting raspberry varieties planted in 2009 or 2010 are being compared with three control varieties, Glen Fyne, Tulameen and Octavia (Table 1) over two harvest years. In addition single guard plots of 10 additional varieties were examined (Table 2); Glen Lyon was planted as a standard variety for very early fruit production.

Table 1: Main entries of summer fruiting raspberry variety trial (listed according to cropping season)

Cultivar/Selection	Bred by**	Cropping season	Planted	Harvest period 2011 season
9911C-1*	JHI	Early	June 2010	14 June - 1 July
CO9	EMR	Early	June 2009	14 June - 20 July
Korpiko	HR	Early	June 2009	16 June - 20 July
Glen Fyne	JHI	Early - mid	June 2009	14 June - 25 July
00123A7	JHI	Early - mid	June 2009	16 June - 22 July
Tulameen	PARC	Early - mid	June 2009	16 June - 22 July
Cowichan	PARC	Mid - late	June 2009	16 June - 25 July
Glen Doll	JHI	Mid - late	June 2009	18 June - 1 August
CO6	EMR	Late	June 2009	27 June - 1 August
Tadmor	HR	Late	June 2009	18 June - 25 July
Octavia	EMR	Late	June 2009	24 June - 1 August

* Only a few, short and thin floricanes of 9911C-1 were retained to crop which may well have resulted in a far shorter harvest for this entry than would normally be expected.

** Breeders details and country of origin:

JHI – James Hutton Institute, Scotland

EMR – East Malling Research, England

HR – HortResearch, New Zealand

PARC – Pacific Agri-Food Research Centre, Canada

WSU – Washington State University, USA

S – Reto Newweiler, Switzerland

Q – University and Agricultural & Agri-Food Canada, Quebec

Table 2: Guard entries of summer fruiting raspberry variety trial (listed according to cropping season)

Cultivar/Selection	Bred by*	Cropping season	Planted	Harvest period 2011 season
0485K-1	JHI	Very early	June 2010	14 June - 15 July
0453C4	JHI	Very early	June 2010	14 June - 25 July
Glen Lyon	JHI	Early	June 2009	14 June - 20 July
0433F2	JHI	Early	June 2010	14 June - 20 July
TulaMagic	S	Early	June 2009	14 June - 25 July
Cascade Delight	WSU	Mid	June 2009	14 June - 25 July
Chemainus	PARC	Mid	June 2009	16 June - 22 July
Jeanne d'Orléans	Q	Mid	June 2010	16 June - 25 July
9764F-3	JHI	Mid - late	June 2009	16 June - 1 August
0019E2	JHI	Mid - late	June 2009	18 June - 25 July
0304F6	JHI	Mid - late	June 2009	24 June - 1 August

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To obtain a full yield in their first cropping year, the primocane of all of the plants planted in June 2009 were cut through at ground level and removed from the crop rows in January 2010. These and the plants planted in June 2010 were cropped in 2011. Of the latter, some plants only produced a small number of primocane of sufficient height during 2010 to crop in 2011, so the yields of fruit from these later planted plots was in the main very small.

Phytophthora rubi was confirmed as the cause of collapse and death of some plants of Glen Fyne in the late summer of 2009. This disease has continued to cause further plant loss of Glen Fyne despite applications of fluazinam (as Shirlan) being made as a drench to the soil surface around the roots of all the plants in the trial every March and October.

Due to cold damage to fruit buds in December 2010 and April/May 2011 the yield was much lower for the entries planted in June 2009 than would be expected from plants in their first full cropping year. In the majority of cases the entries planted in June 2010 produced a very small yield as by the end of their first growing season many of them had produced very few primocanes suitable for retention to crop in 2011.

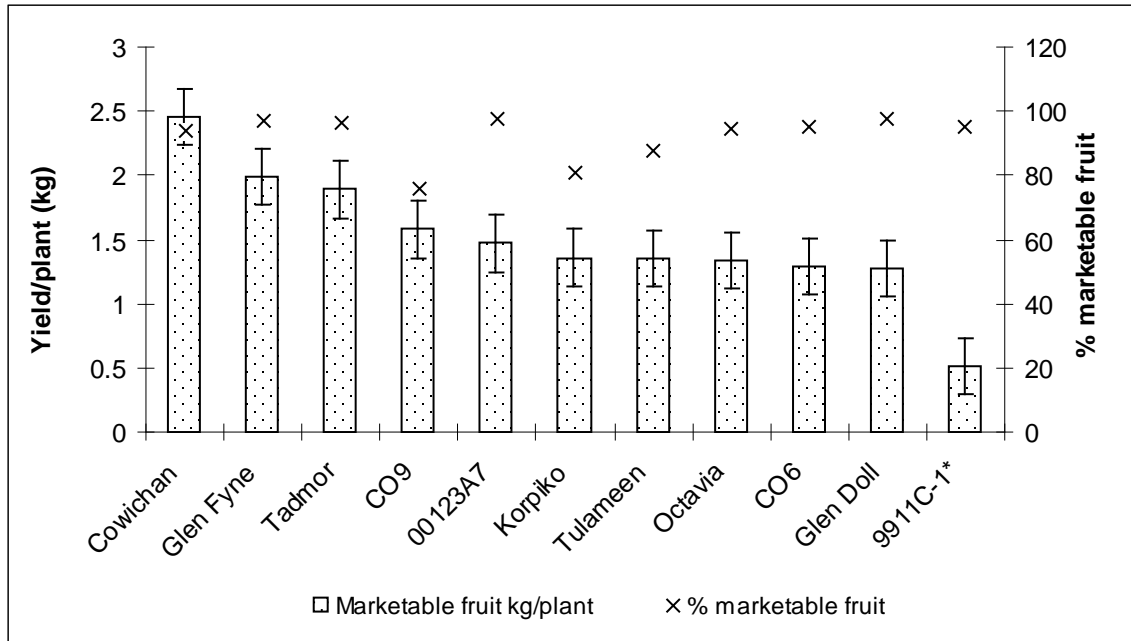


Figure 1: Yield (kg/plant) and % marketable fruit in 2011 for main entries in summer fruiting raspberry trial in order of yield (* planted June 2010).

Cowichan produced the highest yield, in part because its floricanes displayed superior bud break, fruiting lateral and flower numbers compared with most of the other main entries. Tadmor and Glen Fyne also performed well, despite Glen Fyne losing up to 30% of its fruit buds. The amount of waste fruit produced by CO9 and Korpiko was high compared to the other entries most probably due to cold injury to flower buds in May 2011.

The marketable yield of Tulameen was poor and the amount of waste fruit relatively high, which was primarily due to the clone of Tulameen used for this trial. A recent HDC funded trial (SF105) and commercial experience has shown that the Dutch clone of this variety held at Naktuinbouw produces higher yields and fruit of superior quality. The yield of Octavia was also very low due to frost damage.

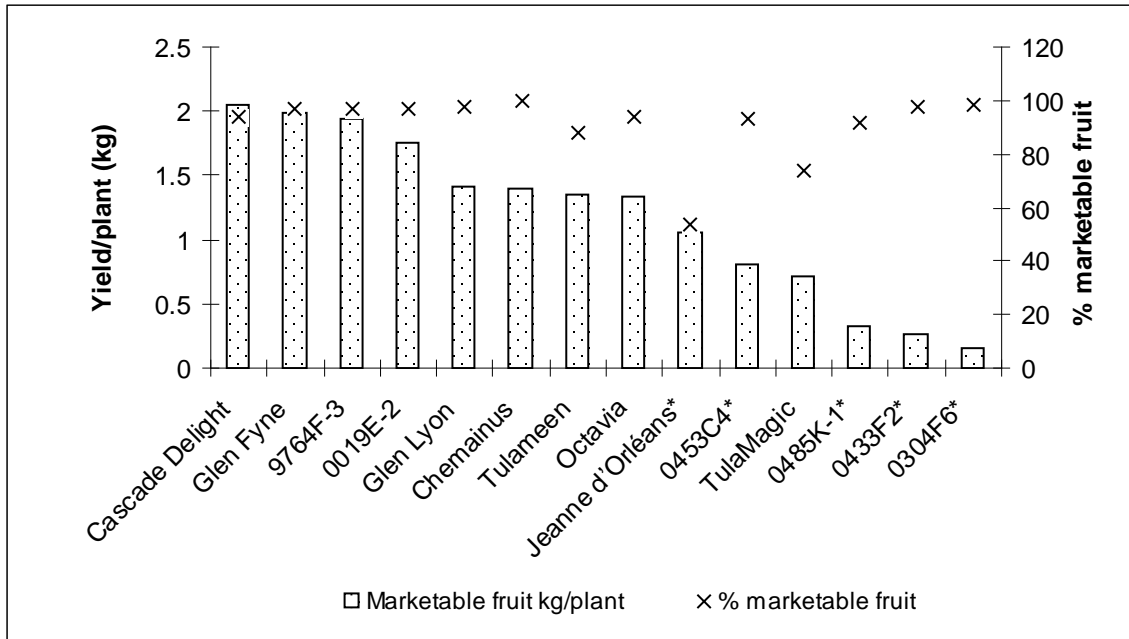


Figure 2: Yield (kg/plant) and % marketable fruit in 2011 for the summer fruiting raspberry guard entries (single plots) in order of yield (* planted June 2010).

Of the guard entries the highest marketable yield was produced by Cascade Delight and the late cropping advanced selection 0019E2. Of the 2009 planted entries the performance of TulaMagic was particularly poor as a result of its floricanne having produced a substantial yield of fruit from their tips downwards in the late summer and early autumn of 2010.

Berry weight was greatest in Octavia and Cowichan and lowest in Tulameen, Glen Doll, CO6 and CO9. In the guard entries Cascade Delight and 0019-E2 produced berries in excess of 5 g.

Main entries of particular interest

9911C-1



Very early fruit production, producing bright attractive fruit, which was cohesive, sweet, but a bit irregular in shape. The berries were easy to pick and had a good shelf life. The plant of 9911C-1 is very vigorous, produces an adequate number of tall but rather spreading spine free canes. The fruiting laterals are long and require support during harvest.

Korpiko



A very early variety producing fruit with an attractive appearance, bright, cohesive but a bit soft and only moderate flavour. The shelf life of the fruit in 2011 was poor. The canes of this variety are spiny, of moderate vigour, plentiful in number but not particularly easy to manage.

00123A7



A mid season cropping selection, producing medium to large pale salmon red fruit, which were a bit variable in shape. They are very well presented to the picker and easy to detach. Berry flavour and shelf life was good. The plant of 00123A7 is vigorous, the canes very tall, stout, spine free, upright in habit and easy to manage.

Cowichan



Throughout its very long harvest this PARC variety produced large berries of a consistent shape. The berries were bright, firm, with a moderate to good flavour and shelf life. Presentation to the pickers and detachment of fruit was good and superior to that of Tulameen. Cowichan produces tall very upright, very easy to manage canes which bear a

few but generally unobtrusive spines towards their base. Generally Cowichan has proved so far to be a very reliable variety.

Tadmor



In 2011 the harvest of this entry was completed just before that of Octavia, however the performance of this variety was good and the quality of its fruit, especially the colour, brightness and flavour, was superior to Octavia. Throughout harvest, the shelf life of Tadmor was good, the fruit was well displayed to pickers and easy to detach. The canes of Tadmor are medium to tall, upright to spreading in habit, bearing some spines, but are generally easy to manage.

Guard entries of particular interest

In their first cropping year, the following appeared to be particularly interesting:

0485K-1



Exceptionally early fruiting, which could be considered as a replacement for Glen Lyon and Glen Moy, producing attractive, evenly set, conic, cohesive fruit with a very good flavour. Fruit well displayed, presented to pickers on medium to very long laterals. The canes of this selection are spine free, plentiful and upright to spreading in their habit.

Cascade Delight



A mid season variety, producing high yields of very large bright, attractive, sweet fruit. The berries are very cohesive, but soft and easily damaged by wind and rain if this variety is in the open during harvest. Of interest mainly for PYO, farm shop and local market sales. Canes very tall, upright to spreading, with some spines, but generally pleasant to handle. Fruiting laterals are long to very long, and bend over without support, obscuring fruit from pickers.

Chemainus



A midseason variety which, like Cowichan, was a promising guard in HDC project SF 41b. However, in that trial, it proved to be more susceptible to *Phytophthora* root rot and succumbed before the end of the trial. In SF 41c it produced very bright attractive firm fruits of moderate flavour and size. These were of a very consistent shape and very cohesive, well displayed to the picker and easily detached. The plant habit of this variety was very similar to that of Cowichan with tall upright canes, bearing a few spines, adequate in number and very easy to manage.

Jeanne d'Orleans



An early-mid season variety, producing berries with very distinct aromatic sweet deep 'raspberry' flavour, which are a mid-dark red in colour, very bright and attractive on the plant and in the punnet. Texture is slightly soft but fruit has an excellent shelf life which is far superior to that of Tulameen. Canes adequate in number, tall, upright to spreading and bear noticeable spines. These do not hamper picking but make cane management unpleasant, of young canes at least. Fruiting laterals are medium to long, ascending in habit, very strongly attached and present fruit well.

0019E2



Very late harvest, which offers a potential replacement for Octavia. Consistently produces very large firm cohesive, attractive bright fruit with a moderate flavour and excellent shelf life. Canes upright in habit, spine free, adequate in number, medium to long, ascending laterals which present fruit well to picker.

Financial benefits

This project seeks to identify new summer fruiting varieties with fruit of good quality and flavour. Berries should have a long shelf life, be easy (i.e. cheap) to harvest and grow and have resistance to pests and diseases. Identifying such improved varieties will increase grower choice, reduce costs of production and also the dependency on current industry standard and exclusive varieties.

Action points

There are no action points at this stage in the project.