



Agriculture & Horticulture
DEVELOPMENT BOARD



Grower Summary

SF 35b

The UK Raspberry Breeding
Programme

Annual 2010

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Before using all pesticides check the approval status and conditions of use.

Read the label before use: use pesticides safely.

Further information

If you would like a copy of the full report, please email the HDC office (hdc@hdc.ahdb.org.uk), quoting your HDC number, alternatively contact the HDC at the address below.

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

Headlines

- MRS released two new processing varieties, Glen Ericht (provisional name for 99111B2) and Glen Cally (provisional name for 99111A1), which are highly tolerant to *Phytophthora* root rot.
- Marker assisted selection has been deployed into the breeding programme early in to screen for resistance to *Phytophthora* root rot. This will eliminate undesirable germplasm early in the breeding process and shorten the timescale required to develop new varieties. The first results are expected by the end of 2010.
- New selection 0485K-1 had outstanding fruit quality in the SCRI plots and is recommended for on-farm trials.
- New selections 0433F2, 0403F6 and 0453C4 performed exceptionally well in SCRI trials.

Background and expected deliverables

In 2009, the UK raspberry industry formed a consortium to fund the National Raspberry Breeding Programme for five years. The objective of the programme is to produce improved raspberry varieties selected for particular markets and cultural practices.

Detailed specifications of the objectives can be found in the revised objectives document. A summary of the expected deliverables from this work will include:

- New potential varieties suitable for both fresh market production (including season extension through protected cropping) and machine harvesting for processing.
- New hybrids with improved pest and disease resistance, especially to *Phytophthora rubi* (root rot).
- Development of new varieties will be aided by the deployment of marker assisted selection, developed at SCRI, substantially reducing the time required to produce a new cultivar.
- Development of new primocane-fruiting varieties.
- Evaluation of promising selections under commercial conditions in grower trials.

Summary of the project and main conclusions

SCRI Trials

This year the following plots were under evaluation at SCRI:

- 20 genotypes in a protected site of replicated 5-plant plots (plot J25), in its third and final season.
 - 30 genotypes in a protected site of replicated 5-plant plots (plot J26), in its second season.
 - 30 genotypes in a protected site of replicated 5-plant plots (plot J7), in its first season.
 - 18 genotypes in a machine-harvest site of 20-plant plots in its second season.
 - Approximately 4000 seedlings from the 2007 crossing programme.
- A summary of the characteristics of key selections, including those already identified for on-farm trials are summarised in Tables 1, 2 and 3.
 - The yield from SCRI of the on-farm selections are compared with Glen Ample, Tulameen and Octavia in Figures 1, 2 and 3.

Table 1: Plot J25 (third season): Summary of characteristics of key selections at SCRI

Genotype	Mean yield / stool (g)	Mean fruit size (g)	Mean Brix %	First pick date	Characteristics
9350F3	6357.5	5.4	8.7	12/07/10	Mid-late season. Attractive, large conical fruit, excellent display, flavour sweet + mild this season, high yield
0304F6	5171.9	5.2	11.8	12/07/10	Mid-late season. Large pale meaty fruit, strong sweet flavour with an acid edge, great display on long, strong laterals
Glen Ericht 99111B2*	4846.2	5.1	9.6	08/07/10	Early-mid season, dark fruit, slightly soft at end of season, very upright primocane, continues to display strong tolerance to <i>Phytophthora</i> ,
Glen Fyne	4981.5	5.0	10.2	12/07/10	Mid season. Fruit is firm with good cohesion and has a sweet and aromatic flavour. Canes produce a high yield of good quality fruit
Tulameen	2495.5	5.1	11.8	12/07/10	Sweet, strong flavour but rough, lumpy and soft all season
Octavia	4596.8	5.4	9.9	16/07/10	Very late, enormous fruit, pale, tearing collar, good aroma but sharp

*Selections currently identified for on-farm trials

Table 2: Plot J26 (second season): Summary of characteristics of key selections at SCRI

Genotype	Mean yield / stool (g)	Mean fruit size (g)	Mean Brix %	First pick date	Characteristics
0453C4*	4115.0	4.8	11.2	06/07/10	Very early. Glossy, firm, good shelf-life, great sweet + floral flavour all season, good habit + display, small at end of season
0453C5	3430.4	4.7	9.5	06/07/10	Early. Very attractive in a punnet, good flavour all season, very firm, great display
0433F2*	3422.8	5.1	11.2	12/07/10	Glossy conical fruit – looks like Tulameen, sweet + aromatic
0433H-3	5098.1	4.8	9.4	08/07/10	Early season. Sweet + floral flavour, consistent through the season, firm, slightly dull, smaller at end of season
9911C-1*	3649.8	6.1	10.1	08/07/10	Early season. Large fruit with prominent drupes, sweet + floral all season, solar damage early season
Glen Ample	3645.0	5.3	9.9	08/07/10	Very poor example of Ample. Short laterals and petioles, very difficult to pick, flavour acid for Ample
Glen Fyne	2971.7	5.4	11.6	12/07/10	Mid season, large fruit, sweet + juicy, good yield but root rot symptoms in plot
Octavia	4111.6	6.4	9.9	19/07/10	Late season. Fruit clustered on very short petioles, sharp but nice aroma, some mildew on primocane
Tulameen	3185.1	5.1	11.7	16/07/10	Variable establishment, 4/5 plants with very poor quality – rough + crumbly, bleeding in punnet, superb flavour

*Selections currently identified for on-farm trials

Table 3: Plot J7 (first season): Summary of characteristics of key selections at SCRI

Genotype	Mean yield / stool (g)	Mean fruit size (g)	Mean Brix %	First pick date	Characteristics
0485K-1	3631.0	6.0	11.1	12/07/10	Mid-season. Large, conical + glossy fruit consistent quality all season. Popular with visitors. Easy + quick to pick. Has <i>Gene H</i> . A clear winner in 2010
0485K-2	3123.6	5.4	10.3	12/07/10	Very bright shiney and long conic like sister K-1 better shelf-life but slightly less flavour. Has <i>Gene H</i>
00123A7*	2999.3	6.2	12.0	12/07/10	Very good quality and popular flavour in 2010. High brix levels all season
0019E2*	1862.5	6.8	10.1	19/07/10	Late season. Enormous fruit size. Top laterals breaking at node and collapsing
0534RB1	2714.9	6.9	12.3	16/06/10	Late season. Enormous fruit size – first pick >8g. Long laterals >1m, but not collapsing
04108F-5	3908.3	4.7	11.5	16/07/10	Shiny pale fruit is pretty in a punnet, excellent shelf-life, stays firm and bright after 7 days
0015F1	2874.5	5.4	10.5	16/07/10	Good display, long strong laterals, upright primocane makes fruit visible and easy to pick, good shelf-life
Glen Doll	2199.2	5.4	11.6	19/07/10	Firm and dry but sweet and fruity. Large fruit this season, well displayed on long laterals
Glen Ample	2715.1	5.1	9.8	12/07/10	Flavour slightly acidic for Ample but typically easy to pick and manage
Tulameen	1757.3	5.5	11.7	19/07/10	Good flavour and quality in this plot, fruit a bit too soft

*Selections currently identified for on-farm trials

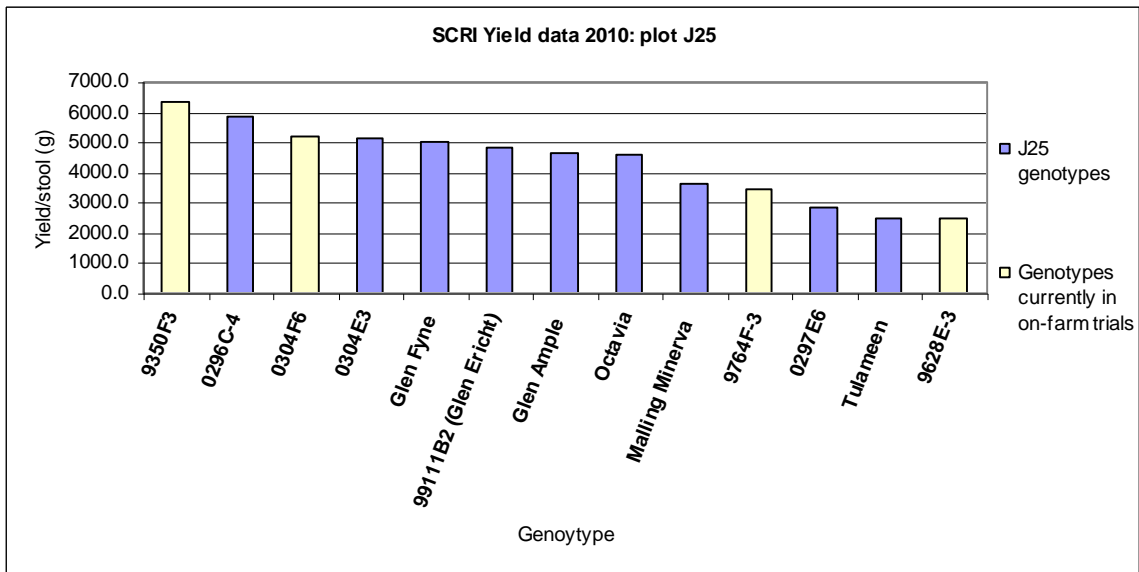


Figure 1. Mean yield of selections in SCRI plot J25

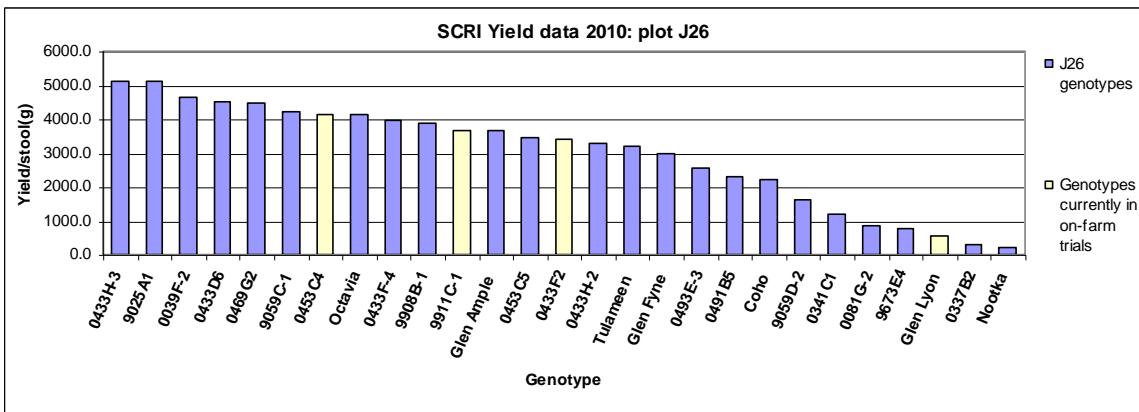


Figure 2. Mean yield of selections in SCRI plot J26

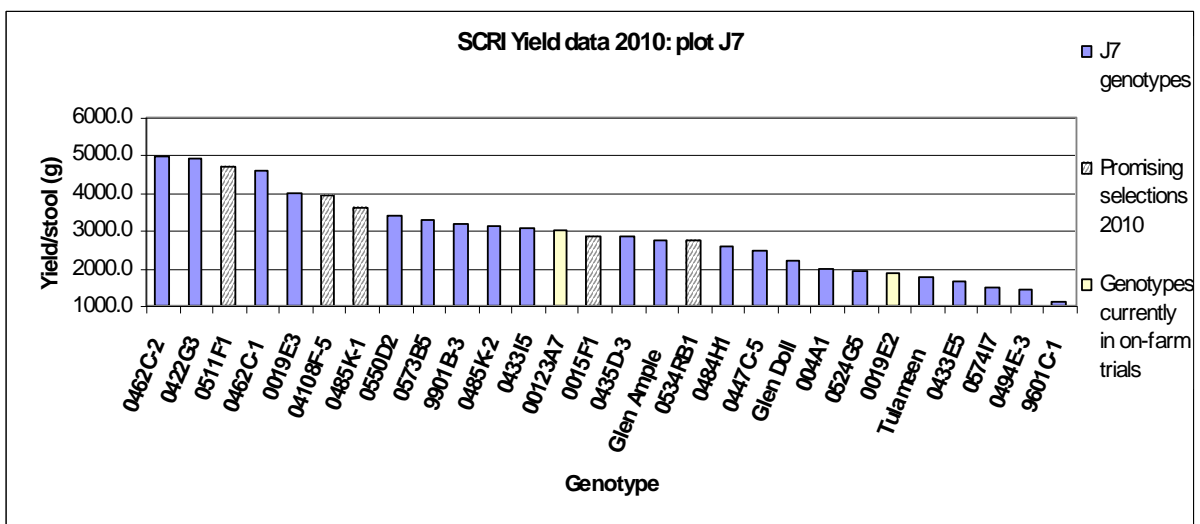


Figure 3. Mean yield of selections in SCRI plot J7

Main Conclusions

- Glen Fyne performed very well in SCRI trials producing a high yield of fruit with exceptional flavour. This has been consistent for the last two seasons. First plants became available from propagators in spring 2008.
- *Phytophthora* tolerant selections 99111A1 (provisionally named Glen Cally) and 99111B2 (provisionally named Glen Ericht) are continuing to perform well in protected and open-field machine-harvested plots. Both are productive with good fruit quality suitable for processing. Selection 99111A1 appears to be acutely susceptible to RBDV at SCRI, whilst 99111B2 remains RBDV-free. Propagation licenses are held by Trade Solutions and RW Walpole. MRS applied for PVR in 2009.
- Selection 00123A7 was planted in on-farm trials at six UK sites and produced a small crop in 2009. This performed very well in SCRI plots in 2010 but was discarded from the trial list in July.
- Selections 0019E2 and 99111C-1 were planted in farm trials in 2008 and early trial data from one site was very promising.
- Three new selections 9350F3, 0453C4, 0304F6 and 0433F2 stood out in SCRI plots with good eating quality and generated lots of interest from various visitors to SCRI during the fruit season. These selections are currently undergoing micropropagation and will be available for planting in on-farm trials in spring 2011.

Financial benefits

The release of varieties with improved fruit quality and yield will result in increased class 1 fruit and increase growers' productivity. New varieties with pest and disease resistance will lead to a reduction in pesticide applications, the costs associated with these and the financial implications of fruit rejections occurring as a result of pesticide residues. With the possibility of a loss of agrochemicals as a result of EU-led policy changes, it is essential that the industry has access to resistant germplasm into the future.

Action points for consortia members

- Continue commercial propagation of Glen Fyne.
- Propagate Glen Ericht and Glen Cally.
- Plant new selections 9350F3, 0453C4, 0304F6 and 0433F2 in on-farm trials.
- Propagate new selection 0485K-1 for on-farm trials.