Grower Summary

TF 172a

Evaluation and development of new rootstocks for apples – on-going work on existing plantings

Annual 2013

Disclaimer

The results and conclusions in this report may be based on an investigation conducted over one year. Therefore, care must be taken with the interpretation of the results.

Use of pesticides

Only officially approved pesticides may be used in the UK. Approvals are normally granted only in relation to individual products and for specified uses. It is an offence to use non-approved products or to use approved products in a manner that does not comply with the statutory conditions of use, except where the crop or situation is the subject of an off-label extension of use.

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.

HDC
Stoneleigh Park
Kenilworth
Warwickshire
CV8 2TL

Tel – 0247 669 2051

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

Project Number:	TF 172a
Project Title:	Evaluation and development of new rootstocks for apples – on-going work on existing plantings
Project Leader:	Gary Saunders
Contractor:	East Malling Research
Industry Representative:	Peter Checkley, Howard Chapman Ltd
Report:	Annual Report 2013
Publication Date:	04 July 2013
Previous report/(s):	TF 172 Final Report
Start Date:	01 May 2012
End Date:	30 April 2016
Project Cost:	£51,731

Headline

- Two selections from the East Malling Rootstock Club breeding programme were assessed but neither AR801-11 nor AR680-2 were an improvement on the M9 rootstock for Queen Cox grown under conventional management.

Background and expected deliverables

A review of HDC-funded rootstock research projects (Project TF 158) acknowledged that there was a strong need for new or improved rootstocks for apples, pears, plums and cherries that are dwarfing, precocious, high yielding and offer some measure of drought tolerance. The report recognised that whilst rootstocks are a vital part of current growing systems, those currently used in commercial production have been grown for decades and have some limitations. Breeding programmes in the UK and abroad have generated a number of promising rootstocks in recent years, which are becoming increasingly available to growers. The report recommended that UK trialling of promising UK and overseas material should continue and that technology transfer should be improved. This work was then undertaken in HDC project TF 172 (*Evaluation and development of new rootstocks for apples, pears, cherries and plums*).

This new project is a continuation of HDC project TF 172 but includes only apple rootstocks. The main aim of the project is to acquire, evaluate (in UK growing conditions) and develop new apple and pear rootstocks, produced by breeding programmes both at EMR and abroad. This project provides continuity of the trialling of fruit tree rootstocks at EMR. It will look for rootstocks of intermediate vigour between M27 and M9 and a replacement for M26 in apple, with continued evaluation of existing plots that were identified as having new rootstocks of potential merit.

Summary of the project and main conclusions

This new project is a continuation of the evaluation of trees in some of the existing plots from HDC project TF 172. The rootstocks included are those with commercial potential rather than selections that were identified as ‘also ran’.

Three existing plots containing the following rootstocks are being assessed:

- Plot CE190: Rootstocks AR801-11 and AR680-2 - planted in May 2004 with Queen Cox scion and compared to M9.

- Plot EE207: Rootstocks AR852-3, AR839-9, B24, R59 and R104 – planted in March 2010 with Braeburn and Gala scions and compared to M26, M9 and M27 standards.
- Plot VF224: Rootstocks AR10-3-9, AR809-3, AR835-11 and R80 – planted in March 2010 with Red Falstaff scion and compared with MM106 and M116 standards.

Plot CE190

Yields (fruit weight per tree) have been recorded during the previous trial and again in 2012. Yields from both AR801-11 and AR680-2 were significantly lower than that of the M9 rootstock. AR801-11 had a significantly smaller crown volume than M9, but there was no significant difference in crown volume between AR680-2 and M9. There were also no significant differences between any of the rootstocks in tree height, mean individual fruit weight and yield efficiency. This indicates that neither of the rootstocks AR801-11 or AR680-2, offer an improvement on the M9 rootstock for Queen Cox grown under conventional management.

Plot EE207

Although there were significant differences in each of the yield categories in 2012, this plot is a recent planting and fruit numbers have not yet reached levels of a commercial significance. An average of only 13 Braeburn fruit per tree or 22 Gala fruit per tree were picked from the most productive rootstock, whereas in a more mature commercial planting anything up to 350 fruit per tree could be achieved. There were significant differences in tree growth, with AR852-3 and R104 having the greatest tree height and crown volume for Braeburn and B24 and M26 for Gala. It is still too early to draw any real conclusions from this plot of Braeburn and Gala grown under conventional management.

Plot VF224

Like Plot EE 207, this is a recently planted plot and as yet there are no significant differences in any of the yield assessments. At present the selection AR809-3 is significantly less vigorous than any of the other selections but the plot is still establishing. It is still too early to draw any real conclusions from this plot of Red Falstaff grown under organic management.

Conclusions

- Neither AR801-11 nor AR680-2 was an improvement on the M9 rootstock for Queen Cox grown under conventional management.
- It is too early to determine if any of the selections in Plots EE207 or VF224 are suitable replacement rootstocks.

Financial benefits

Selection and release of improved rootstocks to the industry will be of financial benefit as the introduction of new rootstocks with increased precocity and yield with fewer requirements for chemical or mechanical growth control and lower pruning costs will have a huge impact on the profitability of UK orchards.

Action points for growers

There are no action points at present.