



Agriculture & Horticulture  
DEVELOPMENT BOARD



# Grower Summary

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## TF 206

Comparison of Different Planting  
material for Fruit Wall Orchard  
Systems for Apple

Annual 2014

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<b>Project Number:</b>	TF 206
<b>Project Title:</b>	Comparison of Different Planting material for Fruit Wall Orchard Systems for Apple
<b>Project Leader:</b>	Tim Biddlecombe Fruit Advisory Services Team LLP
<b>Contractor/(s):</b>	FAST LLP
<b>Industry Representative:</b>	Mark Holden
<b>Report:</b>	Annual, 2014
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<b>Previous report/(s):</b>	None
<b>Start Date:</b>	1 December 2012
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## **Further information**

If you would like a copy of this report, please email the HDC office ([hdc@hdc.ahdb.org.uk](mailto:hdc@hdc.ahdb.org.uk)), alternatively contact the HDC at the address below.

HDC,  
AHDB  
Stoneleigh Park  
Kenilworth  
Warwickshire  
CV8 2TL

Tel – 0247 669 2051

## ***GROWER SUMMARY***

### **Headline**

This research project will compare the establishment of different tree types for Fruit Wall systems using a standard variety, rootstock and spacing.

### **Background and expected deliverables**

As growers consider adopting and planting new orchards for the Fruit Wall growing system for apples (*Malus domestica*), they face a challenge in deciding which tree type to select. Conventionally produced trees have a form and structure ideally suited to wider spacings, where a branch framework is necessary, although these can be adapted to be managed in a Fruit Wall planting. However, other tree types may be more suitable to Fruit Walls, either because they are cheaper and can be planted more intensively at the same cost per hectare, or because they have been specifically grown in the nursery to form a narrow, tall tree, potentially giving higher, early yields.

The Fruit Wall system may offer significant benefits to growers as it lends itself to increased mechanisation which helps to reduce labour costs incurred by pruning and tree management. However, these benefits will only result in increased returns if yield and fruit quality are not compromised.

Following the successful development and commercial uptake of the Concept Orchard by many UK growers (HDC Project TF 151), further evolution and development of more intensive planting systems is being considered. In TF 151 the development of a new orchard system in France (Le Mur Fruitier) was referred to. Further developments of this system have been carried out privately at the PC Fruit Research Station in Sint Truiden, Belgium. Generally this work has been done in existing orchards that have been adapted to the new pruning regime and on varieties not grown in the UK. Results have shown that the principles developed in the work by CTIFL in France can apply in growing areas further north. However, they need to be adapted to local growing conditions and varieties, as the timing of pruning is critical and is specific both to individual varieties and the length of the growing season in different geographical areas.

Little research has been done to identify the optimum way of establishing orchards of this type or which type of tree gives the best results. Several specialist nurseries are now developing tree types designed and grown especially for 'Fruit Wall' orchards. These include 'grow through trees' from several nurseries, and Bibaum® trees from Mazzoni nurseries. Other nurseries recommend that using a maiden tree or an 8 month tree at a close planting distance can give better results.

This research project will compare the establishment of different tree types using a standard variety, rootstock and spacing. It will ultimately provide growers with comparable data to allow them to make informed decisions.

## **Summary of the project and main conclusions**

Five distinctly different planting materials ('tree types') will be compared in a Fruit Wall orchard managed to Integrated Crop Management standards. The planting and establishment of the trees took place in 2013. Records and assessments will commence in 2014.

## **Financial benefits**

The cost of establishing an intensive orchard is currently between £22k - £28k per hectare. The payback period should be as short as possible and one of the major influences on this is the type of tree that is planted and its cropping potential in the early years. The differences in cost of the various tree types available is quite small (typically around £0.50 per tree or £1,500 per ha), but a reduction in yield of 5% in each of the first four cropping years can reduce net returns by around £3,000 per ha. Some tree types have the potential to fill their space (vertically and horizontally) very quickly, leading to increases in early yields. Others require more pruning and thinning to achieve successful establishment.

Although new intensive orchard systems are simpler and easier to prune than lower density traditional orchards, it can still take between 25 and 40 man hours to prune a one hectare orchard. Rates of mechanical pruning vary between 1.5 and 2.5 hours per ha, depending on planting distances. Some hand pruning will be needed even where mechanical pruning is used but net savings of around £3,000 per ha over a 15 year orchard life are envisaged (net of machinery cost).

Anecdotal evidence from experimental plots in Northern Europe suggests that annual yields from Fruit Wall plantings can be around 20 tonnes per ha greater than orchards of a similar density managed conventionally. The value to the grower of this increase would be approximately £21,000 net of all post harvest costs over fifteen years.

### **Action points for growers**

The 2013 season was the planting and establishment phase of the trial. The action points for growers have yet to be determined.