



Grower Summary

TF 207

Determination of the optimum pruning time for fruit wall orchard systems for Gala apple

Annual 2016

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Project Number: TF 207

Project Title: Determination of the optimum pruning time for fruit wall orchard systems for Gala apple

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GROWER SUMMARY

Headline

- The optimum fruit wall timing has yet to be determined, but impacts of pruning treatments on yield, fruit quality and vegetative regrowth will continue to be assessed in 2016, the final year of the trial.

Background and expected deliverables

The fruit wall concept originated in France in 1986 where the system's potential to reduce pruning costs and increase yields was demonstrated. As UK growers consider adopting the fruit wall system, this trial aims to establish the optimum time to make the pruning cut. The timing of the cut determines the amount of vegetative regrowth and also whether the bud behind the cut becomes floral or remains vegetative. Determining the optimum time to perform the pruning cut will help to achieve maximum productivity from the fruit wall system. The impact of the timing of pruning on the yield, fruit quality and vegetative regrowth are being assessed. The trial is being conducted over five years to assess the long-term effects of the treatments.

The trial was established to determine the optimum time to mechanically prune orchards planted as a fruit wall compared to a winter hand pruned control, and to establish the effects of inter tree pruning. The five year trial established in 2012 is laid out in an existing commercial orchard of dessert apple variety Gala (clone Galaxy). 2014 was the third year of timed pruning treatments.

Summary of the project and main conclusions

The project is designed to test the effect of four timings of pruning a fruit wall mechanically compared to a Winter Hand Pruned control. In addition, a further set of treatments (inter pruning) are being imposed to compare the effect of pruning between the trees by hand during the dormant period.

The pruning timings are based upon different growth stages: pink bud, 6 new leaves, 9 new leaves and 12 new leaves (or when 50% terminal buds were present). Table 1 summarises the treatments imposed.

Table 1. Fruit wall cut and pruning treatments.

Treatment number	Timing of fruit wall cut	Inter tree pruning
1	Winter (by hand)	Winter inter tree pruning
2		No inter tree pruning
3	Pink bud	Winter inter tree pruning
4		No inter tree pruning
5	6 new leaf stage	Winter inter tree pruning
6		No inter tree pruning
7	9 new leaf stage	Winter inter tree pruning
8		No inter tree pruning
9	12 new leaf stage	Winter inter tree pruning
10		No inter tree pruning

As in previous years, the winter and early season cuts produced the strongest regrowth (approximately 25cm) and the latest timing the least regrowth (approximately 10cm). Later cuts controlled growth better.

There were no statistically significant differences in yields between the treatments in 2015 but the Winter Hand Pruned control still had the highest cumulative yield. Cumulative yield was reduced for later pruned treatments. Percentage Class 1 was highest for Pink Bud. Inter tree pruning lowered yields generally but increased Class 1 percentage.

Small increases in fruit weight were recorded in the later pruned plots (opposite to 2014) but these were not statistically significant.

There were significant improvements for fruit colour in the 9 Leaf (No Inter Pruning) and 6 Leaf (Inter Pruned) treatments.

No statistically significant differences were recorded in fruit maturity or BRIX⁰ between the treatments.

Financial benefits

If a system based mainly on mechanical pruning proves to be successful with minimal reduction in the yield of Class I fruit, there is potential for reducing the pruning costs and the need for skilled pruning labour. Both of these considerations are important for growers in the

current financial conditions. There were reductions in cumulative yields for later pruned treatments.

Action points for growers

- It is important for growers to assess their orchards and trees before deciding on the timing of pruning.
- Where trees are in balance and have limited regrowth, pruning at the 9 Leaf stage appears to be the optimum stage to improve fruit size and colour.
- Where tree control is the major consideration, delayed pruning is advised.
- Winter Hand Pruning allows pruning to be adapted to the individual tree's needs and produces greater yields, but with more regrowth.

