

Top agronomy and an eye for detail produce exceptional yields of high quality dessert apples

writes Robert Harris

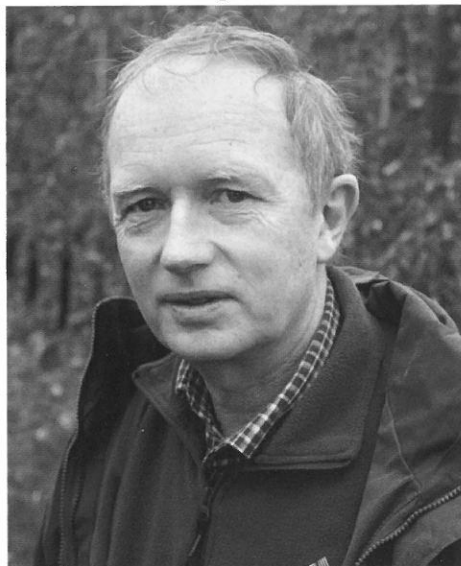
Yields of 80 tonnes/ha and more may not be unusual in cider orchards these days, but for many dessert apple growers it's a rare achievement and likely to remain so for some time.

Sean Finlayson, who manages Farmcare's Kent fruit growing operation at Highland Court Farm at Bridge near Canterbury, believes the figure is a realistically sustainable average yield for his new fruit-wall orchards as they come into full production. Indeed, it's a target that must eventually be achieved to secure the future of dessert apples on the farm, he maintains. "Four years ago our target average yield was 50 tonnes/ha. "This year we achieved 60 tonnes/ha and this is now our overall business target.

However, our newer plantings need to be achieving much more to balance the lower yields from our older orchards, and to drive yields to where we need them to be in the future."

He predicts that in 20 years the farm will need to average at least 80 tonnes/ha to deliver a minimum gross margin of £12,000/ha in today's terms. "Bearing in mind that today's orchards will still be in production, we need to be aiming for that sort of yield now." The farm is well on the way. A fifth-leaf Braeburn orchard, Pete's, produced an impressive 85 tonnes/ha of apples this season in just two pickings, of which 90% graded as Class 1. Another, Badger's, was not far behind. Both orchards were planted with the Hillwell clone.

Although these two orchards account for only four per cent of the farm's 120ha of dessert apples, others are close behind. About two-thirds of the farm's area has been replanted in the past five years since Sean Finlayson arrived, mostly with the Braeburn Mariri Red clone. Third-leaf trees produced an average of 35 tonnes/ha this season, a figure set to at least double over the next two years.



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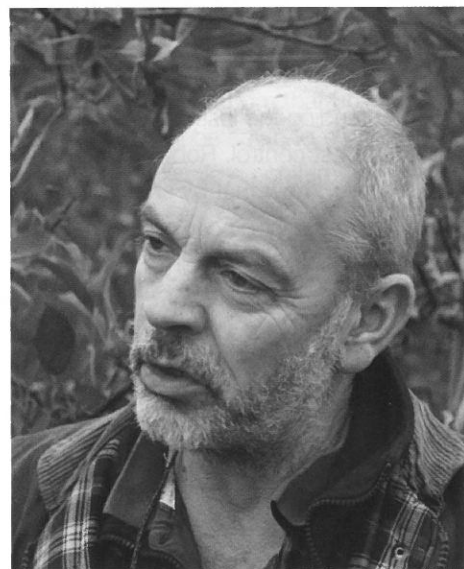
The average Braeburn yield in the UK is just 40-45 tonnes/ha, underlining the progress Sean Finlayson and his team have made at Highland Court, says Paul Bennett, Agrovista's Technical Head of Fruit. "This shows the level of achievement here – it's massive. "Yields have been generally good this year, in terms of quantity. But these are exceptional. In addition, in a year when we have not necessarily seen the right quality, the 90% Class 1 achieved at Highland Court is much better than average."

Yield cannot be obtained at the expense of quality, says Sean. Most of Highland Court's apples go to Tesco, the rest to the Co-operative.

"The aim is to obtain as high a percentage of Class 1 fruit in the first pick as you can. The newer, better-coloured clones offer the chance of one-pick orchards – and we're aiming for 95% Class 1 with our Mariri Red." These apples won first prize in the Braeburn Class at this season's National Fruit Show, underlining the quality emphasis at Highland Court.

While modern clones play a key role, it is a combination of factors that underpin the farm's drive for top yields and quality, says Leon Jahae, a technical consultant to Agrovista's top fruit agronomy team. "It starts with site selection, orientation of the orchard and ground preparation, and buying the best quality trees that suit the site. After that, it's about nutrition, pest and disease control and canopy manipulation – all these factors come into play. It's all about having an eye for detail, and delivering that detail on the ground."

The key is to build square metres of orchard wall so that trees fill the available space and produce high yields of top quality fruit as quickly as possible, says Leon Jahae. The newest Farmcare orchards are planted with 3800 trees/ha, planted 80cm apart with an alley width of 3.25m. Trees are 2.75m high after winter pruning and measure 60cm wide



Paul Bennett, Agrovista's Technical Head of Fruit.

across the lower branches, tapering to 40cm near the top. "This is key to yield," says Leon. "Light is crucial – if the bottom branches are shaded they won't set fruit. Production moves up the tree over successive seasons at the expense of yield and quality."



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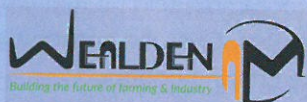
Most pruning is mechanical, but not all, says Sean Finlayson. "We still spend about 50 hours/ha hand pruning. It's a common mistake to think you can get away with mechanical pruning alone on intensive fruit walls. You still need to get into the trees to encourage stronger laterals to ensure there is enough filling in. Every orchard, and areas within it, has its own strategy – some parts will be more vigorous than others, and this has to be taken into account." So too must season, crop load, variety



Some of this season's crop of Mariri Red apples are inspected by Sean Finlayson, Leon Jahae, Paul Bennett and Gavin Lloyd-Desson (left to right).

and colour requirement, with pruning timed to deliver the required growth, says Leon Jahae.

Precise agronomy is critical to ensure that the trees yield to their potential, says Paul Bennett. "The danger with modern systems is that growers continue with the same nutrition and crop protection programmes they used before. You have far more trees reaching high yields much more



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quickly, so you have to increase your inputs accordingly."

The nutrient programme has to be intense, Leon Jahae agrees. "High yields are great, but they need to be sustainable. You must put back what you take out. Trees need to build reserves. Without careful nutrition a big crop can create a significant yield penalty the following year."

The feeding of trees and fruit is based on a programme for the whole year, reviewed as the season progresses, he explains. A series of base dressings and fertigation delivers macronutrients to the soil, based on soil samples taken once every three years. FiloCal foliar products provide further nutrients required during the growing season. "FiloCal products are specifically designed for fruit crops and we stick to a programme, reviewing the orchards' progress in February and March, pre-bloom, after flowering and through June, July and August. Unless there is an apparent problem, we don't do regular leaf sampling."

Pest and disease control has to be excellent to underpin high yields, says Paul Bennett. "Diseases like mildew and scab can quickly undermine vigour and affect the quality of the fruit-bud for the following season."

Paul believes that one of the most important things that Farmcare has done, in terms of pest and disease control, is to subscribe to Agrovista's Growers Choice Interactive (GCI) service. This web-based pest and disease-forecasting tool tracks the development of a range of pests and diseases to ensure optimum, cost-effective control. The service uses live weather data collected by weather stations – Farmcare has installed one on each of its four fruit sites across east Kent. These measure rainfall, relative humidity, temperature, leaf wetness, wind speed and wind direction.

Information is forwarded every 15 minutes to a central server, which uses pest and disease prediction software to produce graphs that indicate the risk of infection/attack. Growers can access live hourly updates online and text messages highlight major scab events. "This allows the team to accurately target pest and disease control, based on live data, optimising control and protecting yield and quality as efficiently as possible," Paul Bennett explains.

At Highland Court, GCI is used to monitor scab, codling moth and, from this autumn, canker. The farm also subscribes to GCI Premier, additional software that



Paul, Sean and Leon discuss the success of this year's apple crop at Highland Court Farm.

calculates the amount of residual fungicide on trees at any given time, based on products used, wash-off and new leaf growth. "This is the first season we've used Premier in conjunction with the scab model," says assistant manager Gavin Lloyd-Desson. "We upload our spray records and the software tells us how much protection the orchard has left at any given time. At Easter the weather turned just after we had done a spray round, and we had several infection periods over that period. The programme told us that we didn't need to spray, and it was right. Over the season we saved two rounds without compromising control."

While optimising control is the primary aim of GCI, such savings can be significant, particularly with codling moth control, says Paul Bennett. "Unlike pheromone trapping, which indicates the presence of male moths, GCI predicts female flying activity, mating, egg laying and larval hatch, providing a more accurate indicator of risk."

Sean Finlayson believes several more codling sprays would have been applied this season had the farm not been using GCI. "Although the pheromone traps gave low counts you would have been very brave not to spray. But the model said it was safe, and we reduced the number of applications and ended up not treating a third of the trees at all. At £70/ha/treatment that's a significant saving."

Such attention to detail underlines Sean Finlayson's philosophy for building sustainable yields at Highland Court. Nothing is left to chance – a long career managing crops from cut flowers to sweetcorn in various parts of the globe has seen to that. As Paul Bennett says, Sean's eye for detail, the level of observation and willingness to respond, together with top class input management, has put the Highland Court team on a par with the sector's best. "If anyone can deliver 80 tonnes/ha average yields within the next two decades, they can." ◆