

Bring in the clones...

After a long wait, avocado growers finally gain access to new clonal material for planting

What are the key benefits – and challenges – that new planting material offers New Zealand avocado growers? That was the topic covered in a recent address to Apta contract growers at the widely attended “Advantage 2006” conference held in Whangarei on 29-30 June 2006.

Speaking on behalf of Riversun Nursery Limited (one of the conference sponsors), General Manager Hilary Morrish Allen outlined the nature of the joint venture signed last year between the Gisborne-based nursery and the Avocado Industry Council (AIC) and offered growers a sneak preview of new material making its way through quarantine.

Under the terms of the joint venture, Riversun has agreed to import 15 new avocado varieties and rootstocks into New Zealand over a five-year time frame. The rationale for entering into such an agreement was clear, said Mrs Hilary Morrish Allen: “As a responsible industry body, the AIC understands that any industry which is not keeping up with the latest trends and research and development risks falling behind its competitors.”

Conference attendees were only too aware that – unlike overseas competitors – their industry had faced such a risk for some time. Following the decision by AgriQuality New Zealand to close the country’s main quarantine operation in Auckland nearly six years ago, many horticultural industries in this country – including avocados – were left without a viable means of importing new plant material from overseas.

Meanwhile, noted Hilary Morrish Allen, other countries were expanding their avocado clonal selection programmes (notably, for rootstocks) in order to provide the following benefits to growers:

- Increased tolerance to fungal root rots, especially to Phytophthora,
- Higher yields
- Lower operating costs.

The good news for the avocado industry is that the joint venture between Riversun and the AIC has effectively ended the six-year gap in the importation of sought-after planting material from overseas. As attendees learned at the conference, the first accessions have already been released from post-entry quarantine and will be ready for planting in the spring of 2007, with more imports coming down the pipeline in the years to come.

Several issues still require resolution, including the all-important question of whether the new imports will work well inside New Zealand. Hilary Morrish Allen observed that the answer to that question could only come over time, as the new cultivars and rootstocks were trialled by growers and/or the AIC. What is known, she continued, is that in several growing regions around the world – particularly in California and South Africa

– cultivars grafted onto clonal rootstocks have come to dominate recent commercial plantings.

As an example, Hilary Morrish Allen cited the experience at Brokaw Nursery, the largest producer of avocado trees in California. Throughout the recent planting boom in that state (where at least 3,500 new acres have been planted annually), grafted trees using clonal rootstocks account for approximately 75% of the market.

Larry Rose, a Brokaw Nursery representative, explains the statistics this way: “In spite of a price premium on clonal trees (versus trees on seedling rootstocks), avocado growers have recognised that the former offer the potential for (1) greater productivity, (2) uniformity of tree size and shape (making orchard management easier), and (3) the ability to select rootstocks that are adapted to different soil stress factors.”

Indeed, Rose goes one step further. He believes that it is the adaptability to soil stress factors, in particular the increased tolerance of clonal rootstocks to Phytophthora, which accounts for their widespread adoption by the Californian industry.

South Africa has also undertaken extensive research on how to minimise Phytophthora damage in its avocado orchards. Hilary Morrish Allen noted that initially the majority of work relied on the Duke 7 rootstock, but later trials have included plantings on other clonal rootstocks such as G6, G755, Thomas, Toro Canyon, D9, Colin V-33 and Barr Duke – several of which are already available for use in New Zealand.

Westfalia, a leading avocado nursery in South Africa, has led the way in its programme to develop clonal planting material that consistently shows the positive traits desired by growers. In addition to the benefits already mentioned, Westfalia has set the following goals:

- Trees that show excellent overall health
- Trees that have good initial vigour for quick and easy establishment
- Capacity for high-density plantings
- Trees with easy rootability in the nursery, with a good graft take.

While New Zealand has traditionally relied on seedling rootstocks for grafting avocado trees, the new clonal rootstocks offer some significant advantages, observed Hilary Morrish Allen. Vegetatively propagated and therefore genetically identical to their “mother tree,” such rootstocks are able to consistently express the beneficial traits shown in the original selection. Seedlings, by comparison, require pollination, and are therefore genetically diverse.

While growers attending the Advantage 2006 conference were interested to learn more about the new clonal rootstocks, they



also wanted to know if there were any disadvantages attached to their use. Hilary Morrish Allen acknowledged that both California and South Africa have had to develop new orchard management practices in order to deal with challenges that are specific to clonal trees.

Due to the procedure required to propagate and graft a clonal tree, the grafted plants have no central tap root. Rather, their root structure resembles the spokes of an umbrella without its supporting pole. Because of this, clonal trees are more susceptible to falling over in their early stages of development. Clonal trees are also far more sensitive to irrigation abuses; if stressed, they are less robust than seedling trees.

Hilary Morrish Allen added that growers who are considering the use of clonal trees need to assess whether their orchard management practices will work for new plantings. "As you would expect in any industry," she continued, "the early adopters are less risk averse and more willing to learn as they go, adopting new ideas and methods that ... have merit and possible commercial advantage."

Certainly, the widespread adoption of clonal trees in California and South Africa indicates that overseas growers already perceive the benefits to outweigh the risks.

One aspect of the joint venture offers additional reassurance to New Zealand growers who are considering clonal trees for future plantings: because the AIC conducts its own research, a number of the importations will be planted for monitoring and evaluation by the council before they are released for commercial use in orchards. Although this means that the material may have to wait an additional five or more years following its exit from quarantine, once it has been made available growers will know that it has been assessed – and approved – for its performance under New Zealand conditions.

The importation programme initiated by the AIC is focused around a key concept, concluded Hilary Morrish Allen. "The delivery of new material to the New Zealand industry is all about providing you, the growers, with world class, competitive options so that you can best decide on the right combination of rootstock and scion for your orchard and your business."

For more information on the avocado material available from Riversun, visit the nursery's website at www.riversun.co.nz

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