

Iwan Labuschagne - Provar

Independent cultivar evaluation gives growers peace of mind



Over the eight years between 2011 to 2019, more than 830 peach varieties were imported into South Africa, with apples not far behind at 782 new varieties (*right: Provar evaluation of new peach varieties*).

The number of cultivars imported every year is astonishing, says Iwan Labuschagne, founder and managing director of Provar, South Africa's only independent cultivar evaluator.

Most of these varieties will never enter commercial production, but those that do are backed by a strong marketing budget.

It still happens that cultivars and rootstocks are introduced into commercial production without sufficient evaluation data, he says, and should that cultivar underperform under the particular local conditions – as recently happened with a new apple cultivar which is already being removed due to internal problems developing during storage – the financial consequences are severe and results in negative exposure of the license holder. The repercussions of a poor cultivar choice are felt throughout the industry, he notes.

Provar offers international cultivar managers the platform to conduct all aspects of local evaluation of rootstocks and scions and all aspects of synchronisation between them, done on a scientific basis.



Adaptability to local conditions is fundamental to a new variety's success (photos supplied by Provar)

Provar's trials are specifically adapted to South African conditions because in cultivar evaluation, 'adaptability' is the magic word, he says. The company hosts a number of University of Stellenbosch postgraduate students engaged in the quantification of adaptability of cherries, plums and apples.

To ensure its independence, the company has no shareholders from the fruit industry and notwithstanding initial seeding money from Hortgro, the company achieved full financial independence within three years.



Provar is in the process to develop an evaluation protocol for macadamias and it has recently been requested to develop protocols for strawberries and kiwifruit, Iwan says. The company's wide experience includes the development of evaluation protocols for blueberries, guavas, avocados, grapes and citrus cultivars.

Right: Chad van Wyk evaluating cherry varieties

Provar is also evaluating packaging material and would like to expand its specialised evaluation services of horticultural products for instance, growth regulators, rest breaking agents for dormancy release or applying preventing measures for development disorders on trees and fruit.

Meticulous data collection over years

After a career as apple breeder at the Agricultural Research Council, Iwan founded Provar, where 119 apple varieties and 24 pear varieties were assessed through a total of 330 evaluations last season.

The process starts after two years of quarantine, which are followed by three or four years of vegetative growth in pome fruit (less for stone fruit and table grapes) before a tree is sufficiently mature for a three year-long screening evaluation in three different locations to separate the wheat from the chaff, he explains.

Then follows a three-year semi-commercial evaluation, a full trial which is a more expensive process, that assesses the commercial value of a product. This stage can possibly be funded by the industry if the trees are planted in the Pro-Hort evaluation sites.



Apart from reams of phenological data collected from the tree and its growth habit, fruit is harvested at ideal ripeness and subjected to four stages of fruit evaluation in the laboratory: a maturity indexing upon harvest, monitoring at the halfway mark of the cold storage period, a penultimate evaluation towards the end of storage followed by an evaluation of shelf life.

Culteva™ app to collect & compare evaluation data

Iwan likens it to a funnelling process during which data is carefully recorded, facilitated by their inhouse app called Culteva™, developed as a data collection and management tool for cultivar evaluators. It generates standardised reports for clients, allowing comparisons across data sheets.

“We’re using Culteva™ on a daily basis to collect data and prepare the reports we submit to clients. A number of evaluators are using this platform internationally to support standardised evaluation.”

“After we have collected exhaustive information we have an open conversation with our clients on the positive and negative characteristics of the cultivar. We give them a comparison with other cultivars, done on an anonymous basis, to advise whether it is worth their while to continue in South Africa with a specific cultivar. It’s a transparent process, which our clients appreciate.”

Pro-Hort evaluation sites

The South African fruit industry has invested in the establishment of 11 evaluation sites during the last two years, evidence of the importance the industry attaches to the planting of only vetted cultivars.

These sites are planted with stone and/or pome fruit cultivars (depending on the site’s location) and have been established across the different microclimates of the Western Cape, plus one in the Langkloof and one in Limpopo (Mookgophong).

This initiative, supported and funded by Hortgro, the umbrella body of the stone and pome fruit industries, has been widely welcomed by producers to provide reliable, nonpartisan information on new cultivars.

There has been a fair bit of debate on whether the sites ought to be covered by shade nets or not, and in the end it was decided that a cultivar that had shown its mettle in a robust environment would prove a more certain indication of its virtues than a cultivar that had excelled in the milder climate created under netting, explains Werner Truter, manager of the Pro-Hort sites as well as Provar's rootstock evaluation project manager.



Werner Truter of Provar in one of the new Pro-Hort evaluation orchards

"If a cultivar, for instance, does not develop symptoms of sunburn in a sunburn-prone area, and this is in an evaluation orchard without a net structure, then this could be an indication that the cultivar is well-adapted to this specific disorder."

"We employ the principle of higher selection pressure, although in the same breath," he adds, "we have taken the decision to install hail nets at the evaluation sites in the Langkloof and Limpopo. Those are high-risk areas in terms of hail and it's becoming standard practice to cover orchards in those production areas."

Other rootstock trials managed by Provar include table and raisin grape rootstock evaluations funded by the South African Table Grape Industry (SATI) and Raisins SA.

Iwan concludes that the future of the fruit industry depends on new cultivars.



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