

CHOOSING table-grape rootstocks

In table-grape production, rootstock choice plays a crucial role in helping vines thrive. By **Kebo Toolo** (Provar)



Rootstocks function as “bodyguards”, shielding scion cultivars from the harsh effects of challenging climates and unfriendly soils and can boost the quantity and quality of the crop. Like picking the right tools for a job, producers choose rootstock varieties based on their unique traits. But here is the twist: SA has such a diverse range of climates and soils that it practically demands the use of special rootstocks for each environment.

SATI is funding two phases of rootstock evaluations which are being managed by Provar, an independent evaluation company. Phase I was planted in 2019, and Phase II in 2022. In the Phase I rootstock plantings, five scion varieties are being evaluated in five different growing environments on eight different rootstocks (Harmony, RS-3, RS-9, Ruggieri 140, SO4, 1103 Paulsen, Richter 110 and 1103 Paulsen).

The diversity in climates and soils in SA requires the use of special rootstocks for each environment.

and Ramsey). The Phase I evaluations mainly include older rootstocks that are being evaluated on newer, more relevant scion varieties. In the Phase II rootstock plantings, three scion varieties are being evaluated on seven rootstocks in three different growing environments. Several new rootstock varieties are being evaluated in these trials, namely GRN-2, GRN-4, Minotaur, Kingfisher, Freedom, 1103 Paulsen and Ramsey.

While data capture on Phase II has already commenced, it is too early to provide results. This article presents results from Phase I evaluation trials, focusing on four key traits (shoot weight, yield, bunch weight and berry weight).

When data analysis is performed across different environments, things can get a bit tricky. The way rootstocks and scion combinations behave is much like assembling a puzzle. To simplify the results, they will be broken down, one environment at a time, to indicate different responses of rootstock and scion combinations. A “bubble graph” is used to show how the rootstocks differ from one another per environment. Average yield per vine and pruned shoot weight (representing vigour) are presented on the axes, and the size of each circle represents average bunch weight per rootstock.

Olifants River region – IFG 68-175 (‘Sweet Celebration’™)
1103 Paulsen and SO4 were the best performers when it came to shoot weight and produced heavy bunches, but this didn’t translate into high yields (Figure 1). Ramsey was highest with regard to yield. Ruggieri 140 also performed well and both stood

out from the rest, even though they did not produce the heaviest bunches and did not induce vigorous growth. In terms of berry weight, Ruggieri 140 and SO4 were the best achievers. SO4 produced the heaviest bunch weight but was not significantly different from 1103 Paulsen and Ramsey.

Berg River region – ‘Sugrathirtyfive’ (‘AutumnCrisp’®)
SO4 performed best, resulting in the highest yield and shoot weight (Figure 2). RS-3, Harmony and Ramsey did not show significant differences from SO4 in terms of yield. Bunch weight was highest with Harmony as well as with SO4 and RS-3. RS-9, Richter 110 and Ruggieri 140 performed poorly in terms of yield, berry, and bunch weights. 1103 Paulsen produced the lowest bunch weight.

Hex River region (Site 1) – ‘Crimson Seedless’
1103 Paulsen and RS-9 were significantly higher in terms of shoot weight (Figure 3). RS-3 induced high yield and heavy bunch weight and performed relatively well in terms of shoot weight. It is important to note that both RS-3 and RS-9 induce moderate to low vigour in scion cultivars. Richter 110 and 1103 Paulsen produced similarly high yields whereas Ramsey, which is generally recommended for low potential soils, produced the lowest yield. RS-3 is generally recommended for sandy loam soils and vigorous scion cultivars and the evaluation results support this. Harmony and SO4 were the best performers in terms of berry weight.

and Ramsey were the best performers in shoot weight whilst Richter 110 and RS-9 both performed poorly. Ramsey produced the highest yield and bunch weight. The heaviest berry weight was produced by Ramsey and Ruggieri 140 whereas RS-9, SO4 and Richter 110 performed the poorest.

Orange River region – ‘Thompson Seedless’
Adverse weather conditions experienced this past season skewed data; hence, no figure is included at this time. Ruggieri 140

importance for commercial success. All trials are currently still in progress and show interesting results, but these cannot be used as recommendations at this stage. For more information, contact Kebo Toolo at Provar: kebo@provar.co.za

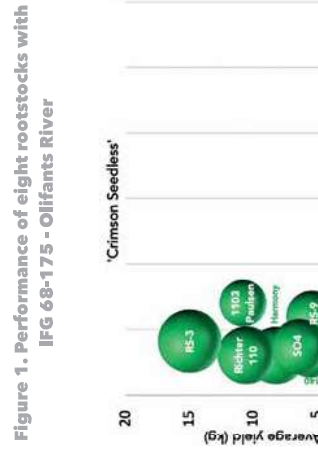
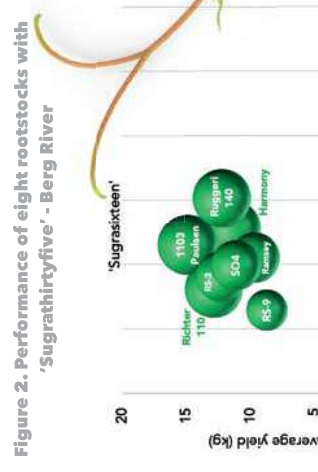
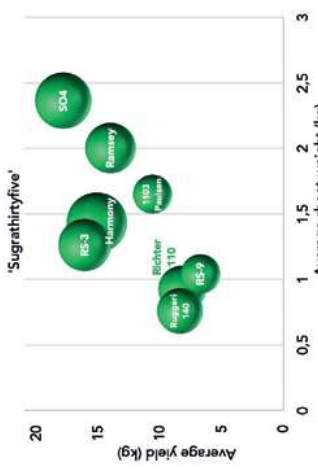


Figure 1. Performance of eight rootstocks with IFG 68-175 - Olifants River

Figure 2. Performance of eight rootstocks with ‘Sugrathirtyfive’ - Berg River

Figure 3. Performance of eight rootstocks with ‘Crimson Seedless’ - Hex River (Site 1)

Figure 4. Performance of eight rootstocks with ‘Sugrasiixteen’ - Hex River (Site 2)