

Hanging tough:

Local wine cultivars adapt to climate change

By Carin Venter

South Africa's road to success in the cultivation of vines, and more specifically the wine industry, has been paved with many stones since the first bottle of wine was produced by Jan van Riebeeck on 2 February 1659.

Today, just like the Big Five, the country's R47 billion-a-year wine industry boasts the Big Six cultivars: Pinotage (originating from South Africa), Shiraz, Cabernet Sauvignon, Merlot, Sauvignon Blanc and Chardonnay.

In 2019, the country dropped from being the eighth biggest producer of wine in the world, to ninth place, ranking seventh on the list of top ten wine producing countries. But while it faces a number of major challenges, the buoyant wine industry in South Africa continues to show resilience and is taking bold steps locally and on the global stage.

Climate change in the vineyard

Climate is considered to be the most important factor determining the phenology, or life cycle, of grapevines. The effect of climate change on viticulture has been noted since the 1990s and not only does it interfere with the characteristics of the grape harvest, but it can lower yields and put producers cultivating sensitive crops in a very vulnerable position.

So where does South Africa's viticulture stand in respect of changes aimed at remaining viable? *FarmBiz* spoke to Jan Boland Coetzee, former Springbok rugby player and wine-making legend who earlier this year was awarded the 1659 Medal of Honour for his remarkable role in the country's wine-making industry.

Coetzee believes that "where the vines feels at home, it will show off its best – the true value of the land". He is currently cellar master, viticulturist, and co-proprietor of the Vriesenhof Vineyards in Stellenbosch. He concurs that while some grapevine varieties can be adapted to climate change, it will invariably have an effect on the grape and wine quality.

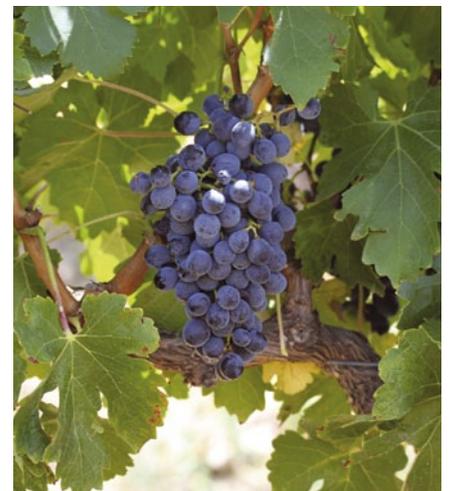


The South African wine industry is adapting to climate change and taking action by introducing new cultivars which can produce under dry and hot conditions.

"Considering climate change, it is worth bearing in mind that dozens of cultivars have adapted to their environment over many years," says Coetzee. "Some of South Africa's oldest vines that have been growing in the same place for many years, have adapted to their environment. A good example is Chenin Blanc, Grenache and Cinsaut, all of which thrive in hot, dry climates and which have been cultivated for the past 300 odd years on the West Coast."

Never-before-seen cultivars

In a bid to counter and overcome the latest challenges, some grapevine producers have started to select more heat-tolerant Mediterranean cultivars. *FarmBiz* sought the advice of Vititec, a Paarl-based company that provides more than 95% of the scion plant material and



The Marselan variety offers a little of everything: tasty red-cherry fruit, a somewhat flashy mouthfeel and soft but discernible tannins.



Macabeu is a wine cultivar that originated from Spain and, while it tastes pleasant, it often lacks acidity.

almost 50% of all rootstock plant material to the South African wine industry.

According to Charles Visser, a viticulturist at Vititec, the company has been involved in an import programme since 2007. This programme is aimed at providing a wider range of cultivars so as to evaluate the different varieties traditionally grown under drought conditions, so that South African winemakers can be more innovative in their plantings.

“South African viticulture traditionally relies on grape varieties from the northern part of the European viticulture zone such as Cabernet Sauvignon, Merlot, Pinot Noir,

Chardonnay and the like, which produce wines of excellent quality and will continue to do so for the near future,” says Visser.

“However, grapevines are generally well-adapted to arid and semi-arid climates and it appears to rely primarily on drought tolerance mechanisms in water stress situations. This is why many in South Africa believe that the introduction of Mediterranean cultivars may be the answer to sidestepping many of our climate change hurdles.”

Drought-tolerance mechanisms

Visser remarks that grape varieties are also generally grown in specific regions and narrow climatic zones for optimum quality and production, since the climate influences the style of wine an area can produce.

Drought tolerance mechanisms can be presented as follows:

- Drought tolerance with low plant-water potential (involves the maintenance of turgor, mainly by osmotic adjustment).
- Drought tolerance with high plant-water potential (avoidance of drought by increasing the uptake of water and lowering the loss of water).

In grapevines, drought-tolerance mechanisms are found in the form of drought responses such as stomatal closure, decrease of cell growth and photosynthesis, lower transpiration, and accumulation of osmolytes and proteins. In general, grapevines are considered a water stress avoidant species, with a tight stomatal control.

Some grape varieties have shown more efficient stomatal control than others. “This encouraged researchers to classify grapevine varieties as isohydric or anisohydric,” says Visser. This classification is, however, somewhat controversial as many of the varieties that were initially classified under one behaviour, have shown opposite performances under different climatic, edaphic and growth conditions.

Cultivars headed for local shores

Assyrtiko is one of Greece’s finest multipurpose white grape varieties that was first cultivated on the island of Santorini. It has the ability to maintain its acidity as it ripens, yielding a bone-dry wine that has citrus aromas mixed with an earthy, mineral aftertaste due to Santorini’s volcanic soil.

Macabeu (syn. Viura) is a white variety from the Catalonia region in Spain. It is a vigorous, productive, later-ripening variety that is well adapted to hot climates and produces large clusters with medium-sized berries.

Vermentino is a white variety from Italy. It is a vigorous, productive variety with large clusters and medium to large berries. The cultivar is well adapted to drought and less fertile soils.

Petit Manseng is a vigorous white grape variety from the southwest of France. It produces small clusters of tiny berries and can maintain high acidity at high sugar levels, producing excellent quality, aromatic dry and sweet wines.

Sauvignon Gris, a mutation of Sauvignon Blanc, is similar in appearance to Sauvignon Blanc, except for the grey or sometimes rosy skin colour at full maturity. Although a mutation of Sauvignon Blanc (sometimes called Sauvignon Rosé), it tastes more like a cross between Sauvignon Blanc and Pinot Gris.

Marselan is a red grape variety derived from a cross between Cabernet Sauvignon and Grenache, which has medium to large clusters and small berries with low production. 🍷



Vermentino is a typical Mediterranean grape variety that retains its acidity well, even in relatively warm regions.

For more information, contact Charles Visser at Vititec on 021 276 0482 or email visser@vititec.com, or Michelle LaCock at Vriesenhof Vineyards on 021 888 00284 or info@vriesenhof.co.za.