

## CASE STUDY: WINE GRAPE FARM & CELLAR

By Carina  
Wessels

### Villiera Wines shares their user experience feedback on the CCC carbon calculator

#### About the CCC Initiative



The Confronting Climate Change (CCC) Initiative is a carbon footprinting project, developed to support South Africa's wine and fruit sectors through identifying and responding to the risks and opportunities associated with carbon emissions.



**Villiera Wines**  
STELLENBOSCH

CCC asked Villiera Wines, a wine grape farm and cellar and CCC user, to share their carbon reduction journey and other sustainability initiatives, as well as some of their experiences with the online carbon calculator.

#### ***Please give us a short overview of Villiera Wines?***

Villiera Wines is a family-owned wine farm in the greater Stellenbosch region, well known for our award-winning Cap Classique and still wines. We have a strong focus on sustainable farming practices and have pioneered environmentally responsible vine growing and wine making. Environmental sustainability is a critical element of our business model. In 2009, before the installation of solar at Villiera, we set ourselves a goal of reducing energy consumption by 50% in five years. This target was reached with 40% of savings due to the installation of solar, and the remaining 60% of savings were achieved by creating awareness and being more energy efficient in general. About half of our 400ha estate has also been set aside as a wildlife sanctuary.

***Tell us about your engagement with CCC - how did it come about and why was the work CCC was doing with the carbon calculator of interest to you?***

The CCC carbon calculator was the logical choice for Villiera as the tool has a very good reputation in the South African wine industry. We used the online tool for the first time last year as we realised the importance of monitoring our carbon emissions. We use the carbon footprint report to identify areas of wastage and potential efficiency improvements. By reducing our carbon footprint, we can demonstrate that we have used fewer resources such as electricity, fuel, fertilisers, and packaging, as well as that we have recycled more.



Villiera is now a CCC Carbon Hero! Carbon Heroes ([www.carbonheroes.co.za](http://www.carbonheroes.co.za)) showcases producers going the extra mile to reduce emissions and increase their resilience in the face of climate change.

***What emission reduction and other sustainability initiatives have you implemented at Villiera?***

We have implemented a number of emission reduction and other sustainability initiatives at Villiera...

**To reduce our electricity emissions:**

Electricity use can be one of the largest sources of emissions on a farm and winery, especially if you use coal based grid electricity. To reduce emissions from electricity, we installed our first solar panels in 2010. In 2022, we doubled our solar capacity to 340kW. The surplus energy produced will be fed into the National Grid, providing us with the option to draw back the excess electricity when required to supplement production. In addition, our large storeroom and cellar receive its lighting requirements through solar domes, which further reduce our reliance on carbon-based energy production.



Photo: Villiera



### **To reduce our fuel emissions:**

Fuel use (diesel, petrol, gas, etc.), is another large contributor to a farm and winery's carbon footprint. To reduce our fuel usage, we have switched to electrical forklifts, and also use small electrical vehicles in vineyards and to drive around on the farm.

### **Sustainable vineyard practices:**

Villiera uses farming methods that encourages wildlife and soil health, and reduces their carbon footprint. Vineyard pests are controlled and kept to a minimum by a large number of guinea fowl, other birds, and predatory insects. We do not spray chemicals unless absolutely necessary. We also promote soil health through indigenous grasses and natural weed growth in our vineyards. Healthy soil has a multitude of benefits, such as increased carbon sequestration and better water holding capacity. It also reduces the need for synthetic fertilisers, which can be a very large contributor to a farm's carbon footprint.



### **Carbon sequestration through our wildlife sanctuary and indigenous tree project:**

In conjunction with two neighbours, we established a 220ha wildlife sanctuary in 2009. It includes 12 dams plus marsh areas which attract a huge variety of birdlife. Conservation efforts take place alongside an indigenous tree project to rehabilitate fallow land. As part of this project, well over 100 000 trees have been planted to date (we stopped counting 10 years ago). Research has shown that 100 000 mature trees are able to remove almost 10 000 tons of carbon from the atmosphere per year. Since 2016 we have also moved to greening our boundary fences. We have been planting double rows of Acacias spaced 1 metre apart along all our boundaries (2 000 trees per km). They become impenetrable, provide natural corridors for small mammals, birds, reptiles, and insects, as well as remove additional carbon from the atmosphere.



### **To reduce our water footprint:**

We use probes to measure soil moisture in the vineyards and only irrigate when necessary via an efficient drip irrigation system. In 2017 we installed a rainwater harvesting system. All roof water is diverted into irrigation dams and in a normal rainfall year this provides around six million litres of rainwater.



### ***How have you found the use of the CCC online tool, easy or challenging?***

The tool itself is relatively straight forward. The most challenging part was to get all the data together that need to go into the tool and then to allocate the data to the different sections as the tool requires.

### ***Have you attended a CCC training workshop? If yes, was it helpful?***

Yes, we attended a light carbon footprint workshop. It was definitely helpful, especially since this is the first time that we used the online carbon footprint tool.

### ***What is your experience with the CCC carbon calculator results/report? Are the results what you expected?***

The report is very valuable. It confirmed what we already knew – electricity, fuel usage, and packaging contribute most to our carbon emissions. These are also the areas that we have been working really hard to reduce.




## Regions that participate in the CCC Initiative


From 2011 to 2021 the CCC database (incl. graded and ungraded data) has grown to cover 206 wine cellars. This represents 39% of the wineries in the country. During this period, the CCC database has also grown to cover 15 407 unique hectares of wine grape farms in South Africa. This represents 17% of the wine grape industry in the country.

Region	Industry Ha	CCC Ha	%
Stellenbosch	15 085	7 201	48%
Klein Karoo	2 181	617	28%
Swartland	12 344	2 075	17%
Breedekloof	12 714	1 683	13%
Robertson	12 801	1 508	12%
Paarl	14 742	1 529	10%
Worcester	6 651	552	8%
Northern Cape	3 463	113	3%
Olifants River	9 403	130	1%


Contact Confronting Climate Change today to start measuring and managing your carbon emissions!




support@bluenorth.co.za




063 688 5593



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Carbon Heroes give recognition to our B-graded license holders for meticulously calculating their carbon footprint.

