



CASE STUDY

ACHTERTUIN FARM

ACHTERTUIN FARM'S SUSTAINABILITY STORY UNVEILED
THROUGH THE CCC CARBON CALCULATOR



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About the CCC Initiative

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

CCC approached Steven Versfeld, a pome fruit grower, dedicated CCC user, and the current owner of Achtertuin Farm, to share his sustainability story and some of his experiences with the online carbon calculator.



About Achtertuin Farm

Achtertuin Farm has a rich history dating back to 1917 when Steven Versfeld's great grandfather acquired land in the picturesque Ceres region. At the time of purchase, the farm was untouched, with virgin soil waiting to be cultivated. Showing his innovative spirit, Steven's great grandfather decided to dig a canal on the farm, which served as a means to flood-irrigate the area between the river and the contour. This marked the farm's first venture into irrigation, a practice that has since evolved into automated systems.

In 1996, Steven joined his father in farming operations. During the mid-nineties, Steven's father began transitioning away from conventional farming methods, embracing a journey towards biological farming. Today, this approach forms the foundation of Achtertuin's agricultural practices, emphasising soil health and minimising chemical inputs.

Achtertuin Farm spans across 120 hectares of land, with 55 arable hectares and the remaining portion encompassing mountainous terrain. Achtertuin Farm primarily focuses on cultivating pears and some apples.

Achtertuin Farm's engagement with CCC – how it came about and why the work CCC was doing with the carbon calculator was of interest to you?

Having been among the pioneers to adopt the CCC carbon calculator when it was introduced in 2011, Achtertuin Farm has maintained an intermittent utilisation of the calculator over the years. However, since 2016, we have consistently used the calculator on an annual basis, having it contribute to our ongoing commitment to sustainability. The CCC Initiative has allowed Achtertuin Farm to quantify our carbon footprint and help highlight where we need to focus our time and money to achieve the biggest improvements.

What emission reduction and other sustainability initiatives have you implemented at Achtertuin Farm?

We have implemented a number of initiatives at Achtertuin Farm, some of which include:

Biological farming

When I started farming almost 30 years ago, my father and I embarked on a journey towards biological farming, gradually moving away from purely conventional methods in the mid-nineties. Today, this approach is an integral part of our farming practices, with a strong emphasis on soil health and minimising chemical inputs. While we still utilise synthetic fertilisers, herbicides, and pesticides when necessary, our goal is to keep their usage to a minimum.

In recent times, we have begun experimenting with cover crops as a potential alternative to herbicides. This method involves cultivating a dense layer of organic matter during winter, providing a sustainable weed control solution, which naturally decomposes during summer, providing additional organic matter to naturally enrich the soil.

Releasing beneficial insects. Image: Achtertuin Farm





Chipping old orchards for mulch. Image: Achtertuin Farm

To create a favourable environment for soil life, we allow weeds to grow on the "bankie" (the banks of the orchard) and chip all prunings onto it as mulch. Additionally, we are gradually reducing our synthetic nitrogen (N) usage while closely monitoring the impact of this reduction. We rely on K_2SO_4 (potassium sulphate) and soft rock phosphate as soil-friendly sources for K (potassium) and P (phosphorus).

In pest control, we employ natural predators to manage mites and mealybugs, and we utilise mating disruption techniques to control codling moth. This approach not only reduces pesticide use but also minimises the need for spraying, leading to a decrease in diesel consumption.

Energy efficiency

In 2012, we took the initiative to install our first variable speed drive (VSD) in order to reduce the power consumption of our irrigation pumps. By 2020, we had successfully equipped all pumps on the farm with VSDs. Additionally, in the same year, we installed a grid-tied solar system. Unfortunately, due to regulatory constraints, our ability to expand the solar installation has been limited.

The recent occurrences of high levels of load shedding have compelled us to invest in backup generators to ensure uninterrupted production of a high-quality product. Recognising the cost and carbon footprint implications of running generators, we have made significant investments in integrating the generators with solar and battery backup systems. This integration allows us to minimise the use of generators and optimise the utilisation of renewable energy sources.

Furthermore, every house on the farm is equipped with wood-burning fireplaces and solar geysers. Additionally, each house has a "donkey" mounted above the fireplace, which harnesses the fire's heat to warm the water in the solar geysers. This setup enhances energy efficiency and utilises renewable resources for domestic purposes.



Mechanisation. Image: Achtertuint Farm

Fuel efficiency

Reducing diesel consumption is a key focus for us, as spraying accounts for a significant portion of our fuel usage. To address this, we prioritise the purchase of new spray tractors and pumps based on their fuel and power efficiency. In particular, we have found that tower sprayers offer greater efficiency compared to traditional round blowers, optimising our diesel consumption during spraying operations.

Furthermore, our commitment to biological farming practices plays a crucial role in minimising the need for spraying. By allowing beneficial insects to thrive and establish a natural balance, we can reduce reliance on chemical interventions and thereby decrease diesel usage. Achtertuint Farm's integrated pest management practices result in fewer spraying instances, reduced pesticide application, and consequently, a lower overall diesel footprint.

Recycling

All on farm household waste is collected at a central point and we encourage recycling by providing every household with multiple drums. The central point has a skip for general waste and containers for recyclable waste.

Removal of invasive alien vegetation

We have removed all invasive alien vegetation from the farm and follow a yearly program to remain free of aliens. We are in the process of trying to establish a riverine forest of natural trees and do annual trips into the adjacent mountain to remove pines and hakea from the mountain slopes above the farm.

What benefits does the CCC carbon calculator provide to Achtertuin Farm?

The carbon calculator is a requirement that enables us to access a premium market. It has allowed Achtertuin Farm to quantify our carbon footprint and it also helps to highlight where we need to prioritise our time and money for significant improvements.

What would you consider the most valuable feature of the CCC carbon calculator?

I find the benchmarks particularly valuable as they allow for direct comparisons. For instance, by benchmarking diesel usage, I discovered that I am operating at just 50% of the average diesel consumption per hectare for my region. This indicates to me that I'm going in the right direction. In essence, the calculator serves as a gauge, enabling us to identify areas of improvement and ensure we are on the right path.

What is your experience with the CCC carbon calculator results/report? Does it have value for you?

I love getting the result and then comparing it to the benchmark and seeing where our focus should go. One aspect that particularly stands out on the report is the electricity used for irrigation. My aspiration is to eventually have around 50% of my irrigation powered by solar panels as a renewable energy source. Ideally, I would love to transition to running entirely on solar power. However, the main obstacles are the significant costs involved and the regulatory constraints that prevent further expansion of solar installations in South Africa.

What are your thoughts on the Carbon Heroes initiative?

I like the initiative as it creates the opportunity for progressive farmers to tell their story. I really like the Carbon Heroes QR code as it provides a means to tell our story to the end consumer. The person buying the pear can now scan the code with their cellphone and access the story behind the pear.



Planted cover crop. Image: Achtertuin Farm

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



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