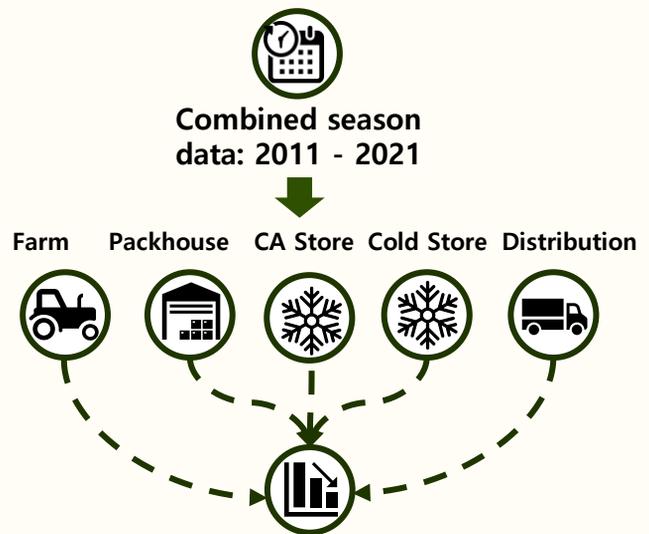


South African Pome Fruit

Introduction

The 2022 Confronting Climate Change (CCC) industry benchmark process builds on 2020 - 2021 datasets and provides a meaningful platform for the South African fruit and wine industries to improve their understanding of the use of fossil fuel-based resources and to reduce emissions over time.

The ten years combined season data (2011 - 2021) for pome fruit were used for the assessment and analysed based on the following business boundaries: farm, packhouse, CA and cold store, and distribution. Distribution is not presented in this report.



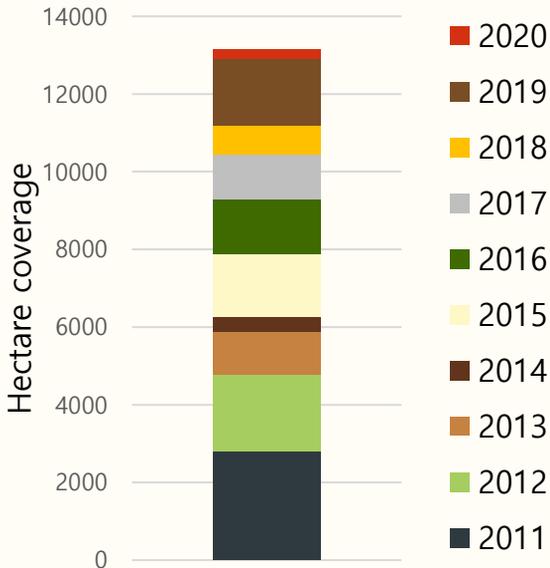
About the benchmark data

The CCC benchmark reports use combined season data from 2011 - 2021 to provide an industry-specific CO₂e benchmark. Users who calculate their carbon footprint using the CCC online carbon calculator have the option to submit their data for grading. This grading is undertaken by the CCC technical team who work with the user to ensure that all data is correctly entered and accurately reflects the entity's operations. To ensure the quality and accuracy of the benchmark results, only graded datasets are included in the benchmark calculation.

The benchmark values are determined using the mean value of graded datasets in the CCC database. Values falling beyond 1.5 times the standard deviation of the mean of the normally distributed dataset are considered outliers and are excluded from the benchmark calculation. All results are shown in the internationally accepted format of **kilograms of carbon dioxide equivalent per unit (kg CO₂e/kg fruit)**. Please note that the carbon footprint between various fruit types or commodities should not be compared. Different commodities are functionally different and require different inputs. For example, more water might be needed by one commodity than another and therefore more electricity will be needed for the pumping of water. For more information, please contact the CCC Initiative (www.climatefruitandwine.co.za).

Which regions participate in the CCC Initiative?

From 2011 to 2021 the CCC database (incl. graded + ungraded data) has grown to cover **13 106** unique hectares of pome fruit farms in South Africa. This represents **34%** of the pome fruit industry in the country.



Region	Industry Ha	CCC Ha	%
Somerset West / Stellenbosch	346	346	100%
Ceres / PA Hamlet	12 479	6 605	53%
Mpumalanga	206	78	38%
Villiersdorp / Vyeboom	5251	1 698	32%
Elgin / Groenland / Grabouw	8 975	2 727	30%
Freestate	532	113	21%
Wolseley / Tulbagh	1481	282	19%
Piketberg	486	81	17%
Langkloof	6 492	1 023	16%
Berg Rivier (includes Paarl)	215	28	13%
Klein Karoo (Robertson)	1376	123	9%

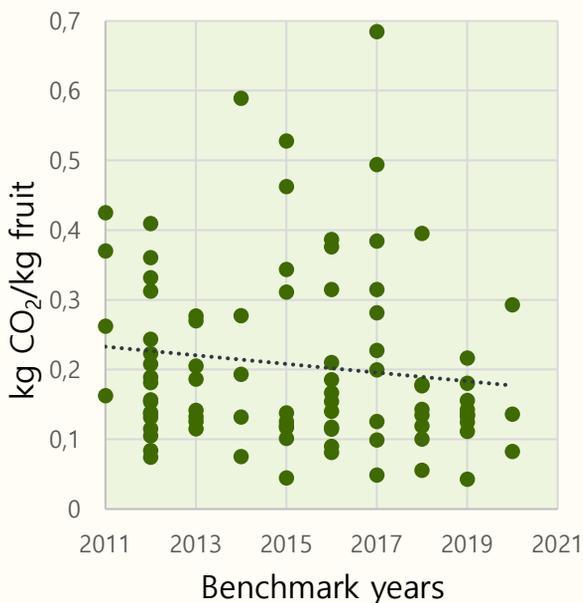


Farm CO₂e Benchmark

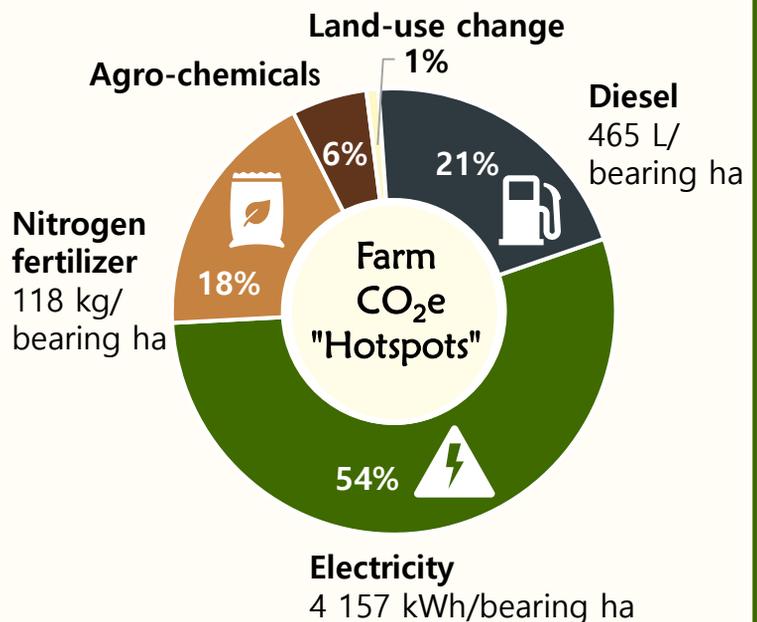


0.21 kg CO₂e/kg fruit

The downwards trend in the graph below is due to electricity and fertilizer emissions decreasing since 2017 and 2012 respectively.



Electricity is the highest contributor to farm CO₂ emissions, followed by **Diesel** and **Nitrogen fertilizer**



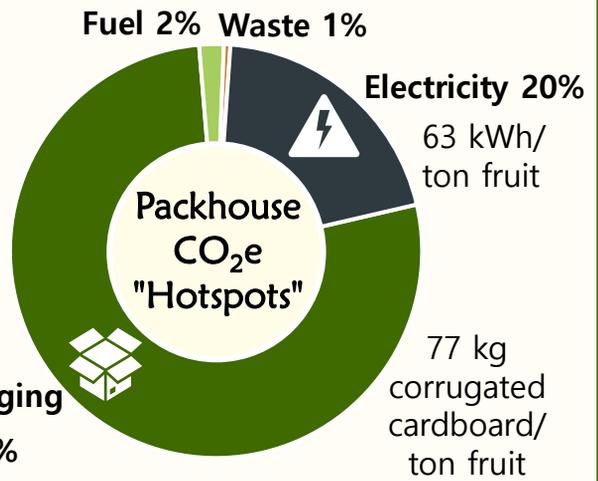
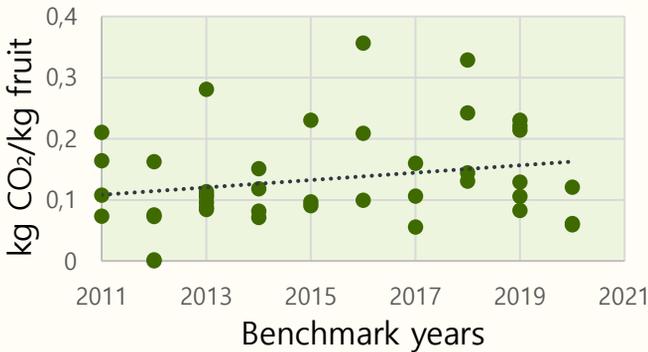


Packhouse CO₂e Benchmark

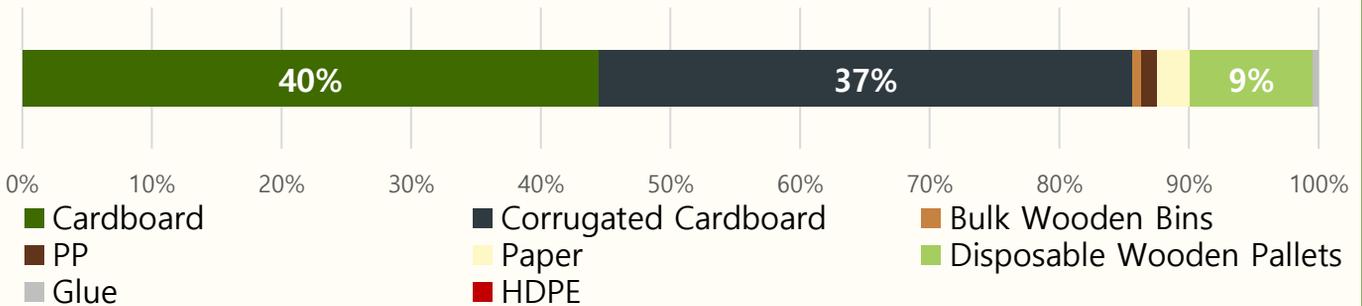


0.13 kg CO₂e/kg fruit

The upwards trend in the graph below is due to packaging and electricity emissions reaching a peak in 2016 - 2018.



Where are the CO₂ emissions from packaging coming from?

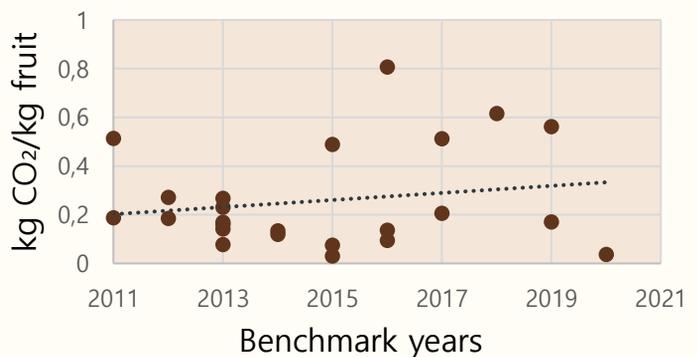
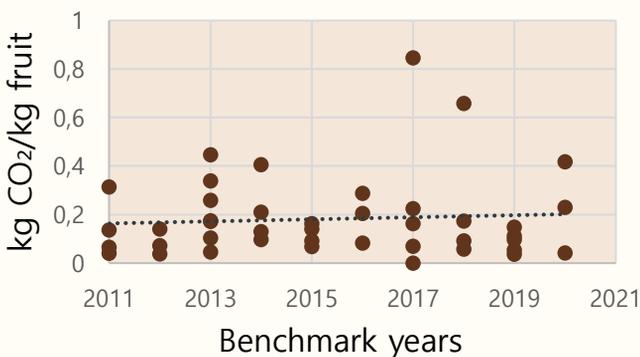


Cold Store & CA Store CO₂e Benchmark

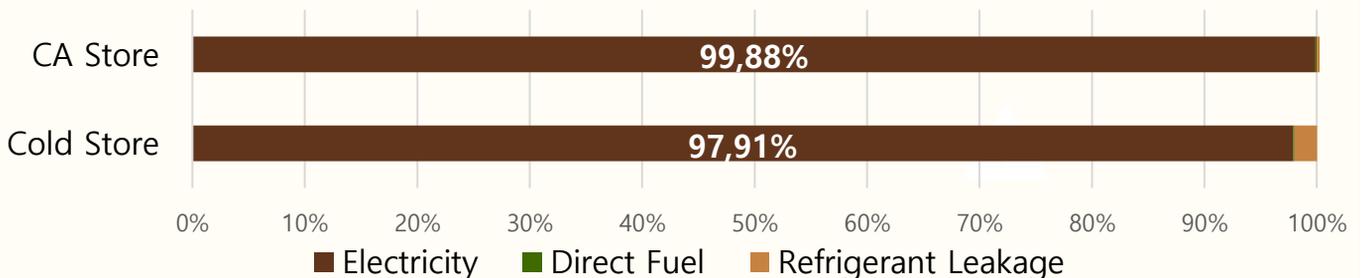


Cold Store: 0.18 kg CO₂e/kg fruit

CA Store: 0.26 kg CO₂e/kg fruit



Where are the CO₂e "hotspots"?



CCC Carbon Heroes

We present the Carbon Heroes of the South African Wine and Fruit Industry!

www.carbonheroes.co.za

CCC is proud to announce that we have launched a new carbon footprint label and website – www.carbonheroes.co.za – where our B-graded license holders are recognised for meticulously calculating their carbon footprint. They are the Carbon Heroes of the South African Wine and Fruit Industry!

This opportunity is presented free of charge and provides recognition to all our farmers and/or businesses by being awarded with either a one year or three year label.



1 Year Label

I calculate my carbon footprint and have my data sense checked against industry norms and values.



3 Years Label

I have calculated my carbon footprint for three consecutive years or more and have my data sense checked.



Project Partners



Disclaimer: The results shown in this report represent the approved data points of the CCC pome fruit sample group representing combined data from the ten-year seasonal period of 2011-2021. In line with the leading international carbon footprinting protocol of PAS 2050-1:2012, a three-year period is required to reflect seasonal and production variances. The data range now covers the required three-year period, and therefore accounts for seasonal and production variances. However, the data range of the sample is not yet representative of the industry at large. Due to this consideration, the results should NOT be distributed on behalf of or representing the South African pome fruit industry. It is aimed to be used as an internal evaluation exercise for those South African producers and exporters wanting to compare their carbon footprint results with the CCC regional sample group averages. This report has been compiled by Blue North Sustainability (Pty) Ltd. Author & design: Carina Wessels. Data analysis: Karlien Heyns. Reviewed: Anel Blignaut. For more information please contact the CCC Project Manager, Carina Wessels, at carina@bluenorth.co.za.