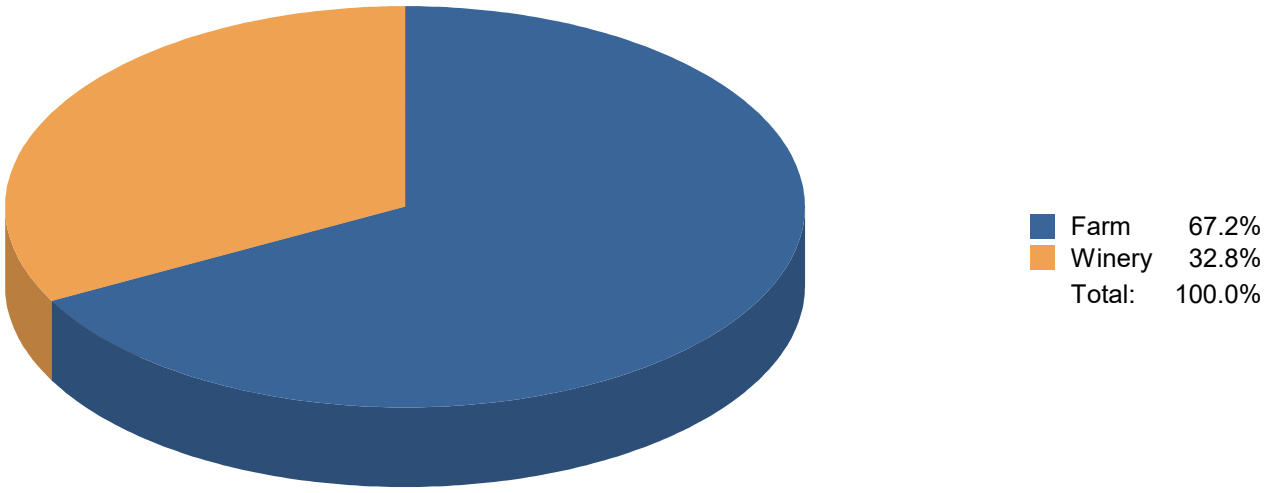
CONFRONTING CLIMATE CHANGE
A SOUTH AFRICAN FRUIT & WINE INITIATIVE

## Carbon Calculator Results

| | |
|---|---|
| **Business Name:** | Forrester Vineyards |
| **Country Name:** | South Africa |
| **Creation Date:** | 4/20/2026 1:59:48PM |
| **Data Collection Period:** | Jan 2025 to Dec 2025 |
| **Report Grade:** | B1 - This dataset has been checked by CCC and is part of the benchmark. |

# Business Unit - Boundary View




| Boundary | Tonne $CO_2e$ | % |
|---|---|---|
| Farm | 94.18 | 67.16 |
| Winery | 46.06 | 32.84 |
| **Total** | **140.24** | **100.00** |

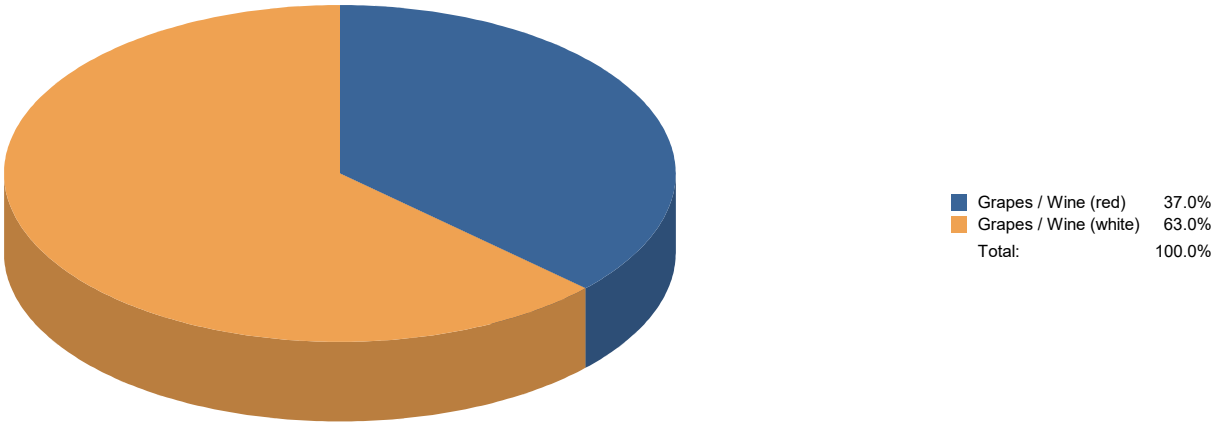
The Carbon Calculator must be completed on an annual basis. This allows users to monitor their carbon footprint trend and analyse improvements.

**Business Name:** Forrester Vineyards

**Dataset:** 4/20/2026 1:59:48PM

**Data Collection Period:** Jan 2025 to Dec 2025

# Business Unit - Commodity View



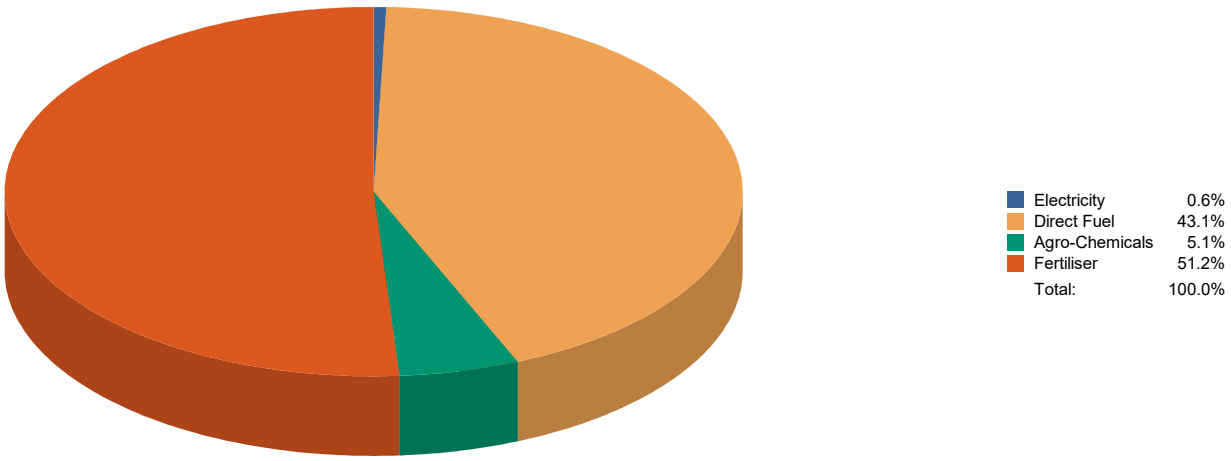

| Commodity | Tonne $CO_2e$ | % |
|---|---|---|
| Grapes / Wine (red) | 51.87 | 36.98 |
| Grapes / Wine (white) | 88.37 | 63.02 |
| **Total** | **140.24** | **100.00** |

**Business Name:** Forrester Vineyards

**Dataset:** 4/20/2026 1:59:48PM

**Data Collection Period:** Jan 2025 to Dec 2025

# Farm - Emission Source View




| Emission Source | Tonne $CO_2e$ | % |
|---|---|---|
| Electricity | 0.57 | 0.61 |
| Direct Fuel | 40.59 | 43.10 |
| Agro-Chemicals | 4.83 | 5.13 |
| Fertiliser | 48.19 | 51.17 |
| **Total** | **94.18** | **100.00** |

**Business Name:** Forrester Vineyards

**Dataset:** 4/20/2026 1:59:48PM

**Data Collection Period:** Jan 2025 to Dec 2025

## Farm Commodity Benchmark

| Commodity | Kg CO2e per Kg Fruit | Benchmark |
|---|---|---|
| Grapes / Wine (red) | 0.23 | The CCC regional average is 0.24 Kg CO2e per Kg Fruit and consist of 108 data points. |
| Grapes / Wine (white) | 0.35 | The CCC regional average is 0.26 Kg CO2e per Kg Fruit and consist of 101 data points. |

## Farm Hectare Breakdown

| Commodity | Tonne $CO_2e$ per Bearing Ha |
|---|---|
| Grapes / Wine (red) | 2.39 |
| Grapes / Wine (white) | 2.93 |

## Farm Scope Breakdown

| | Tonne $CO_2e$ | % |
|---|---|---|
| Scope 1 | 60.00 | 63.70 |
| Scope 2 | 0.57 | 0.60 |
| Scope 3 | 33.62 | 35.69 |
| **Total** | **94.18** | **100.00** |

**Business Name:** Forrester Vineyards

**Dataset:** 4/20/2026 1:59:48PM

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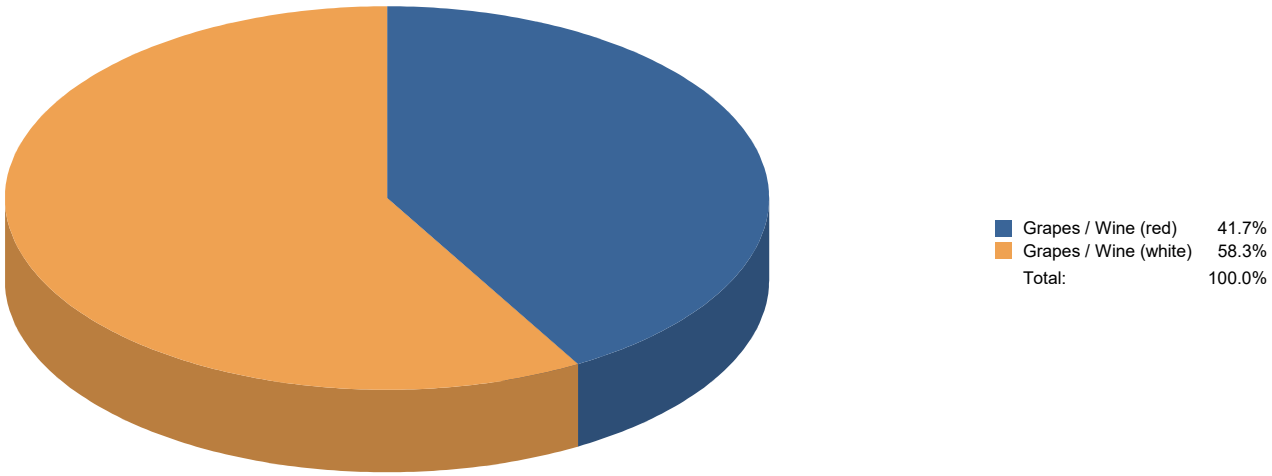
# Farm - Commodity View




| Commodity | Tonne $CO_2e$ | % |
|---|---|---|
| Grapes / Wine (red) | 39.23 | 41.66 |
| Grapes / Wine (white) | 54.95 | 58.34 |
| **Total** | **94.18** | **100.00** |

**Business Name:** Forrester Vineyards

**Dataset:** 4/20/2026 1:59:48PM

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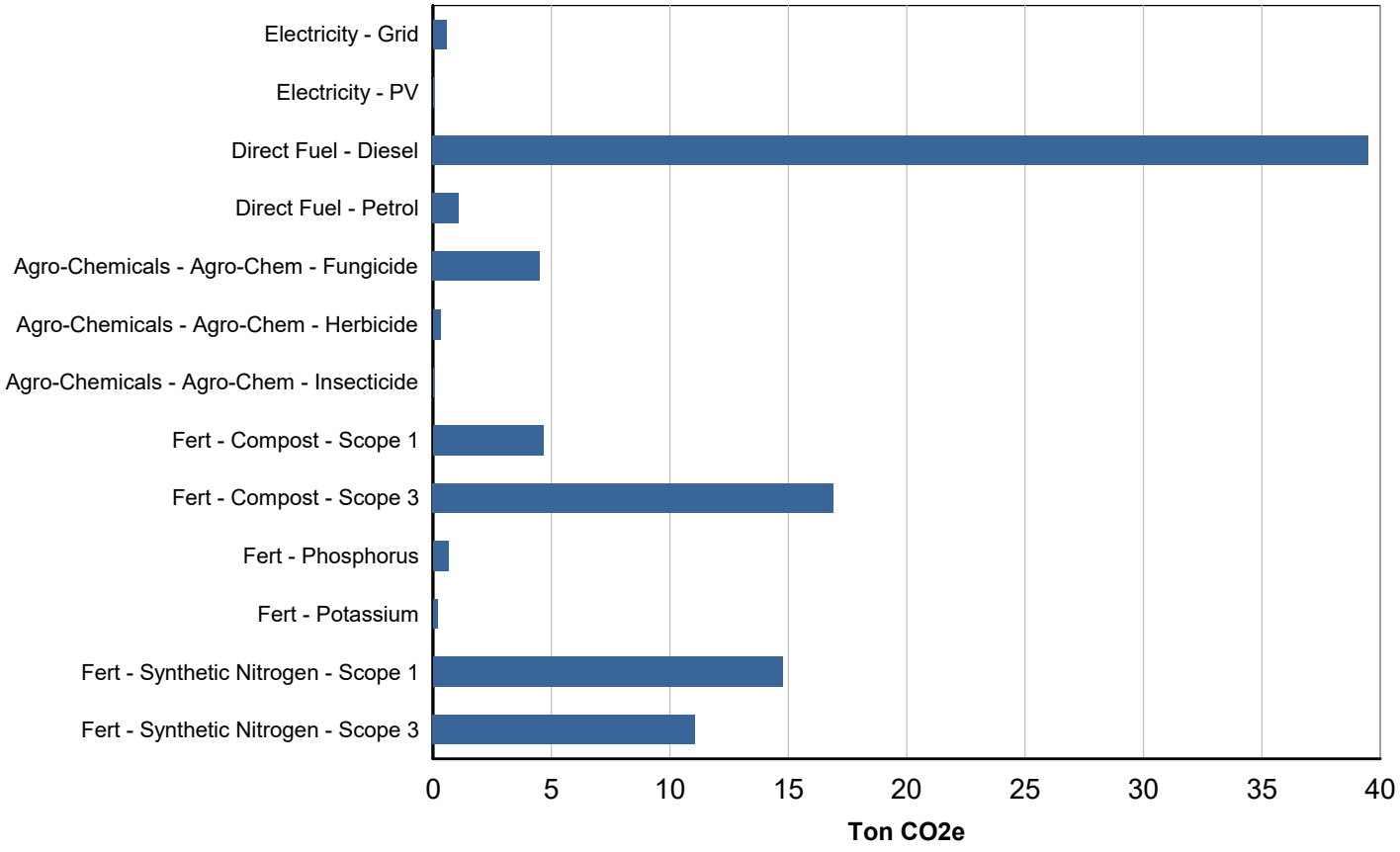
# Farm - Emission Source Breakdown




| Emission Source | Tonne $CO_2e$ | % |
|---|---|---|
| Electricity - Grid | 0.57 | 0.60 |
| Electricity - PV | 0.00 | 0.01 |
| Direct Fuel - Diesel | 39.50 | 41.94 |
| Direct Fuel - Petrol | 1.09 | 1.15 |
| Agro-Chemicals - Agro-Chem - Fungicide | 4.51 | 4.79 |
| Agro-Chemicals - Agro-Chem - Herbicide | 0.31 | 0.32 |
| Agro-Chemicals - Agro-Chem - Insecticide | 0.01 | 0.01 |
| Fert - Compost - Scope 1 | 4.65 | 4.94 |
| Fert - Compost - Scope 3 | 16.91 | 17.96 |
| Fert - Phosphorus | 0.63 | 0.67 |
| Fert - Potassium | 0.18 | 0.19 |
| Fert - Synthetic Nitrogen - Scope 1 | 14.75 | 15.66 |

**Business Name:** Forrester Vineyards

**Dataset:** 4/20/2026 1:59:48PM

**Data Collection Period:** Jan 2025 to Dec 2025

| | | |
|---|---|---|
| Fert - Synthetic Nitrogen - Scope 3 | 11.06 | 11.75 |
| **Total** | **94.18** | **100.00** |

**Business Name:** Forrester Vineyards

**Dataset:** 4/20/2026 1:59:48PM

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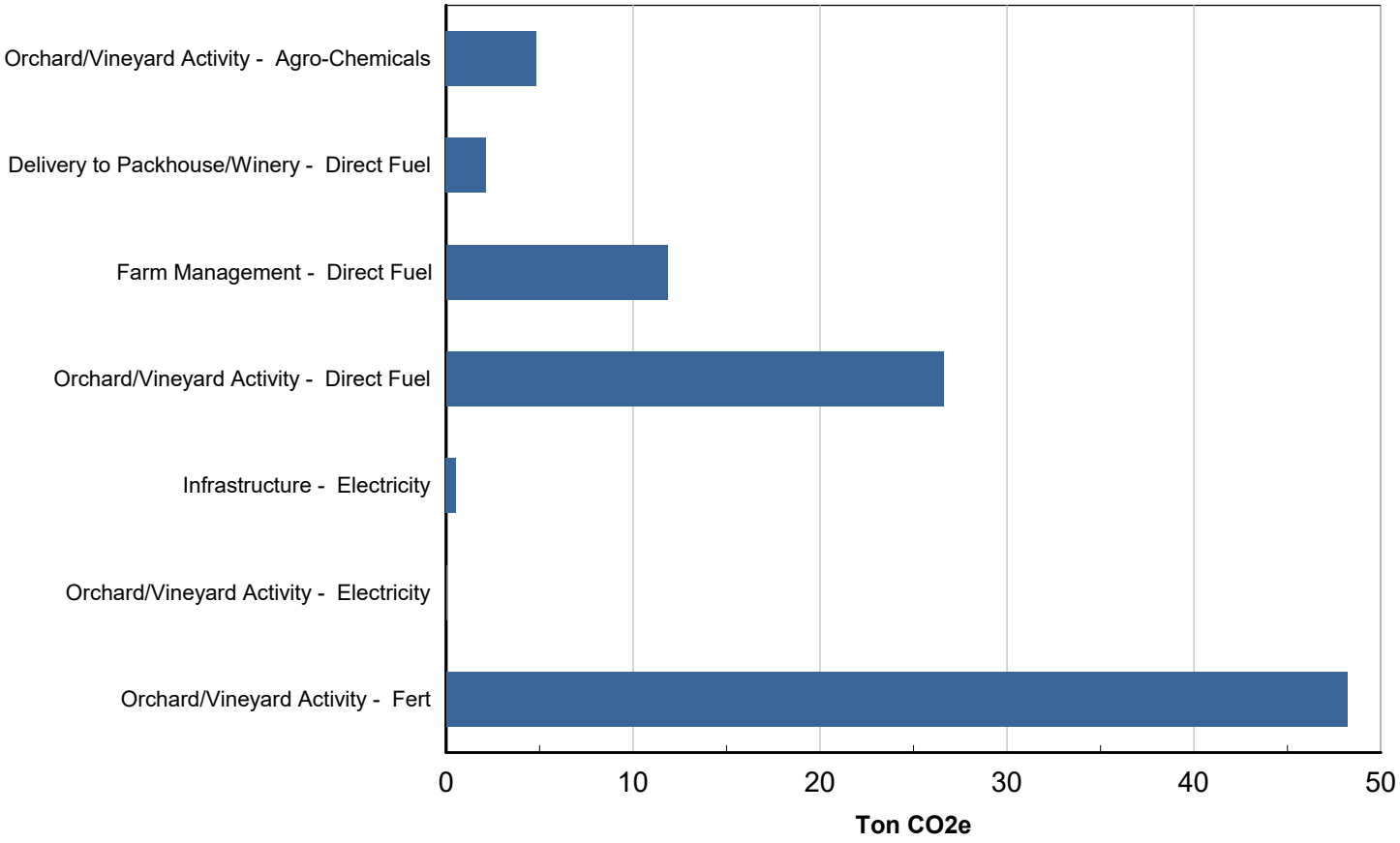
# Farm - Activity Breakdown




| Activity Breakdown | Tonne $CO_2e$ | % |
|---|---|---|
| Orchard/Vineyard Activity - Agro-Chemicals | 4.83 | 5.13 |
| Delivery to Packhouse/Winery - Direct Fuel | 2.13 | 2.26 |
| Farm Management - Direct Fuel | 11.86 | 12.59 |
| Orchard/Vineyard Activity - Direct Fuel | 26.60 | 28.25 |
| Infrastructure - Electricity | 0.52 | 0.55 |
| Orchard/Vineyard Activity - Electricity | 0.05 | 0.06 |
| Orchard/Vineyard Activity - Fert | 48.19 | 51.17 |
| **Total** | **94.18** | **100.00** |

**Business Name:** Forrester Vineyards

**Dataset:** 4/20/2026 1:59:48PM

**Data Collection Period:** Jan 2025 to Dec 2025

# Detailed Carbon Emissions Breakdown

| Detailed Activities | Tonne $CO_2e$ | % |
|---|---|---|
| Electricity - Grid - Orchard/Vineyard Activity - BO | 0.05 | 0.06 |
| Electricity - Grid - Infrastructure | 0.52 | 0.55 |
| Electricity - PV - Orchard/Vineyard Activity - BO | 0.00 | 0.00 |
| Electricity - PV - Infrastructure | 0.00 | 0.00 |
| Direct Fuel - Diesel - Orchard/Vineyard Activity - BO | 26.60 | 28.25 |
| Direct Fuel - Diesel - Delivery to Packhouse/Winery | 2.13 | 2.26 |
| Direct Fuel - Diesel - Farm Management | 10.77 | 11.44 |
| Direct Fuel - Petrol - Farm Management | 1.09 | 1.15 |
| Fert - - Synthetic Nitrogen - Orchard/Vineyard Activity - BO | 25.81 | 27.41 |
| Fert - - Phosphorus - Orchard/Vineyard Activity - BO | 0.63 | 0.67 |
| Fert - - Potassium - Orchard/Vineyard Activity - BO | 0.18 | 0.19 |
| Fert - - Compost - Orchard/Vineyard Activity - BO | 21.57 | 22.90 |
| Agro-Chemicals - Agro-Chem - Fungicide - Orchard/Vineyard Activity - BO | 4.51 | 4.79 |
| Agro-Chemicals - Agro-Chem - Insecticide - Orchard/Vineyard Activity - BO | 0.01 | 0.01 |
| Agro-Chemicals - Agro-Chem - Herbicide - Orchard/Vineyard Activity - BO | 0.31 | 0.32 |
| **Total** | **94.18** | **100.00** |

**Business Name:** Forrester Vineyards

**Dataset:** 4/20/2026 1:59:48PM

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# Farm Consumption Benchmarks

| Commodity | Consumption Measure | Result | Benchmark |
|---|---|---|---|
| Grapes / Wine (red) | kL Water per Ton Fruit | 124.30 | The CCC regional average is 131.63 kL Water per Ton Fruit and consist of 98 data points. |
| Grapes / Wine (red) | kL Water per Bearing Ha | 1,300.00 | The CCC regional average is 1191.56 kL Water per Bearing Ha and consist of 98 data points. |
| Grapes / Wine (red) | kWh Orchard / Vineyard Electricity per Ton Fruit | 0.15 | The CCC regional average is 107.11 kWh Orchard / Vineyard Electricity per Ton Fruit and consist of 98 data points. |
| Grapes / Wine (red) | kWh Orchard / Vineyard Electricity per Bearing Ha | 1.53 | The CCC regional average is 852.01 kWh Orchard / Vineyard Electricity per Bearing Ha and consist of 98 data points. |
| Grapes / Wine (red) | Liters Orchard / Vineyard Diesel per Ton Fruit | 24.98 | The CCC regional average is 23.80 Liters Orchard / Vineyard Diesel per Ton Fruit and consist of 98 data points. |
| Grapes / Wine (red) | Liters Orchard / Vineyard Diesel per Bearing Ha | 261.22 | The CCC regional average is 190.88 Liters Orchard / Vineyard Diesel per Bearing Ha and consist of 98 data points. |
| Grapes / Wine (red) | Kg Pure N per Ton Fruit | 4.09 | The CCC regional average is 3.12 Kg Pure N per Ton Fruit and consist of 98 data points. |
| Grapes / Wine (red) | Kg Pure N per Bearing Ha | 42.79 | The CCC regional average is 26.02 Kg Pure N per Bearing Ha and consist of 98 data points. |

| Commodity | Consumption Measure | Result | Benchmark |
|---|---|---|---|
| Grapes / Wine (white) | kL Water per Ton Fruit | 156.18 | The CCC regional average is 130.84 kL Water per Ton Fruit and consist of 95 data points. |
| Grapes / Wine (white) | kL Water per Bearing Ha | 1,300.00 | The CCC regional average is 999.21 kL Water per Bearing Ha and consist of 95 data points. |
| Grapes / Wine (white) | kWh Orchard / Vineyard Electricity per Ton Fruit | 0.24 | The CCC regional average is 150.54 kWh Orchard / Vineyard Electricity per Ton Fruit and consist of 95 data points. |
| Grapes / Wine (white) | kWh Orchard / Vineyard Electricity per Bearing Ha | 2.02 | The CCC regional average is 1037.51 kWh Orchard / Vineyard Electricity per Bearing Ha and consist of 95 data points. |
| Grapes / Wine (white) | Liters Orchard / Vineyard Diesel per Ton Fruit | 41.33 | The CCC regional average is 31.96 Liters Orchard / Vineyard Diesel per Ton Fruit and consist of 95 data points. |
| Grapes / Wine (white) | Liters Orchard / Vineyard Diesel per Bearing Ha | 344.03 | The CCC regional average is 219.11 Liters Orchard / Vineyard Diesel per Bearing Ha and consist of 95 data points. |
| Grapes / Wine (white) | Kg Pure N per Ton Fruit | 6.76 | The CCC regional average is 3.86 Kg Pure N per Ton Fruit and consist of 95 data points. |
| Grapes / Wine (white) | Kg Pure N per Bearing Ha | 56.28 | The CCC regional average is 30.66 Kg Pure N per Bearing Ha and consist of 95 data points. |

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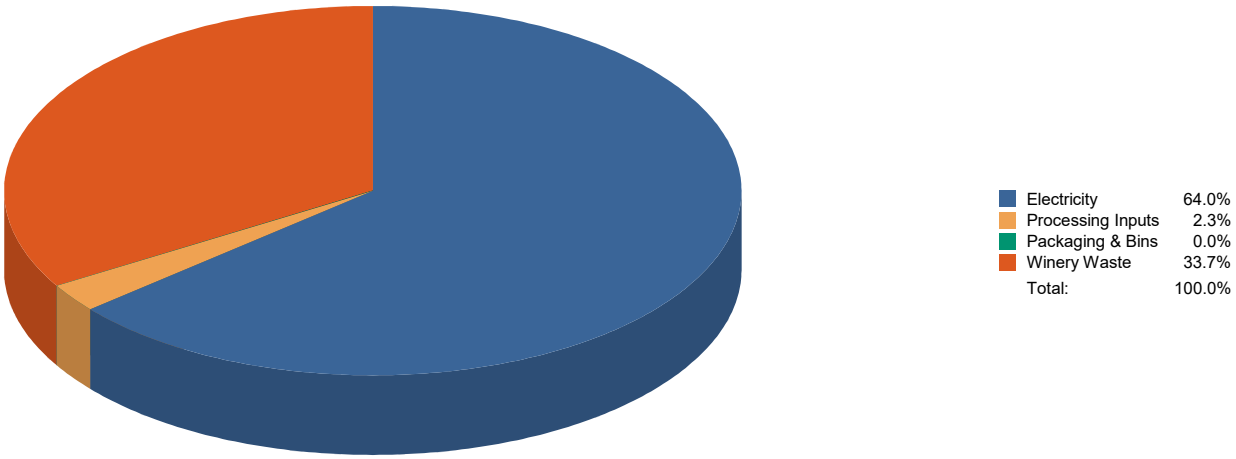
# Winery - Emission Source View




| Emission Source | Tonne $CO_2e$ | % |
|---|---|---|
| Electricity | 29.48 | 64.02 |
| Processing Inputs | 1.05 | 2.28 |
| Packaging & Bins | 0.01 | 0.03 |
| Winery Waste | 15.51 | 33.68 |
| **Total** | **46.06** | **100.00** |

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## Winery Commodity Benchmark

| Commodity | Kg CO2e per L Wine | Benchmark |
|---|---|---|
| Grapes / Wine (white) - Bottling | 2.56 | The CCC regional average is 0.84 Kg CO2e per L Wine and consist of 76 data points. |

## Winery Scope Breakdown

| | Tonne $CO_2e$ | % |
|---|---|---|
| Scope 1 | 0.09 | 0.19 |
| Scope 2 | 29.40 | 63.83 |
| Scope 3 | 16.57 | 35.98 |
| **Total** | **46.06** | **100.00** |

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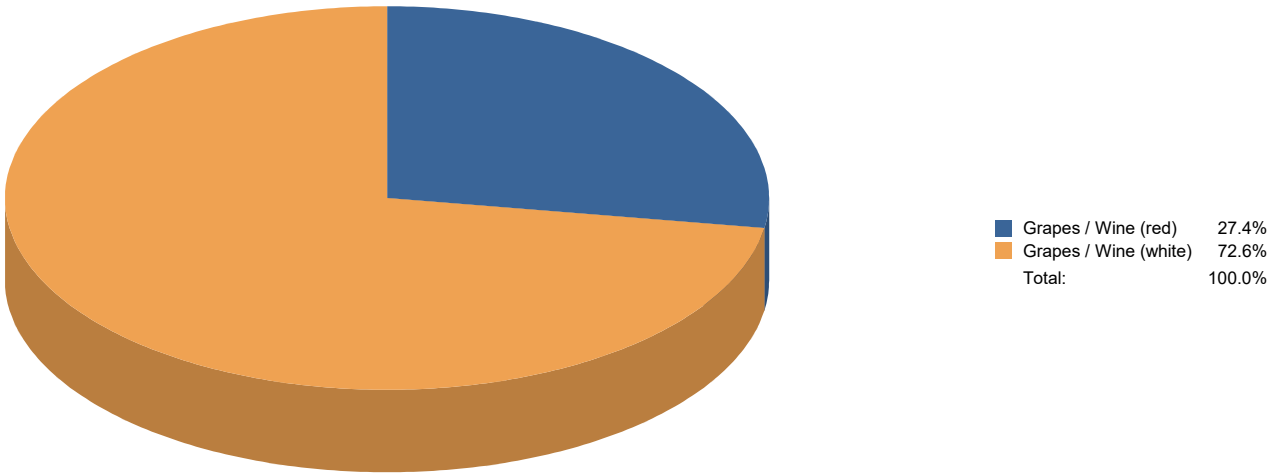
# Winery - Commodity View




| Commodity | Tonne $CO_2e$ | % |
|---|---|---|
| Grapes / Wine (red) | 12.63 | 27.43 |
| Grapes / Wine (white) | 33.42 | 72.57 |
| **Total** | **46.06** | **100.00** |

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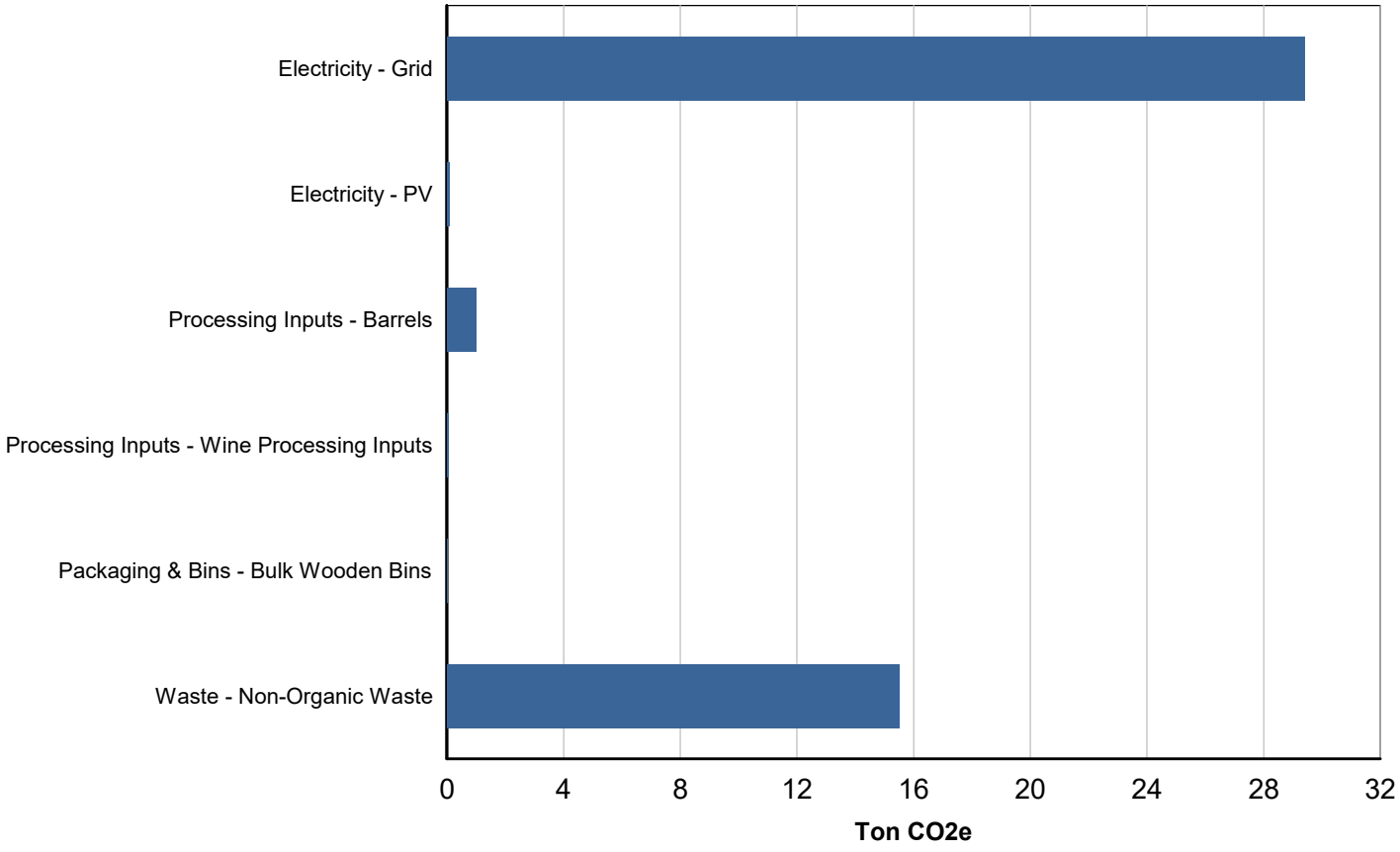
# Winery - Emission Source Breakdown




| Emission Source | Tonne $CO_2e$ | % |
|---|---|---|
| Electricity - Grid | 29.40 | 63.83 |
| Electricity - PV | 0.09 | 0.19 |
| Processing Inputs - Barrels | 1.01 | 2.19 |
| Processing Inputs - Wine Processing Inputs | 0.04 | 0.09 |
| Packaging & Bins - Bulk Wooden Bins | 0.01 | 0.03 |
| Waste - Non-Organic Waste | 15.51 | 33.68 |
| **Total** | **46.06** | **100.00** |

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**Dataset:** 4/20/2026 1:59:48PM

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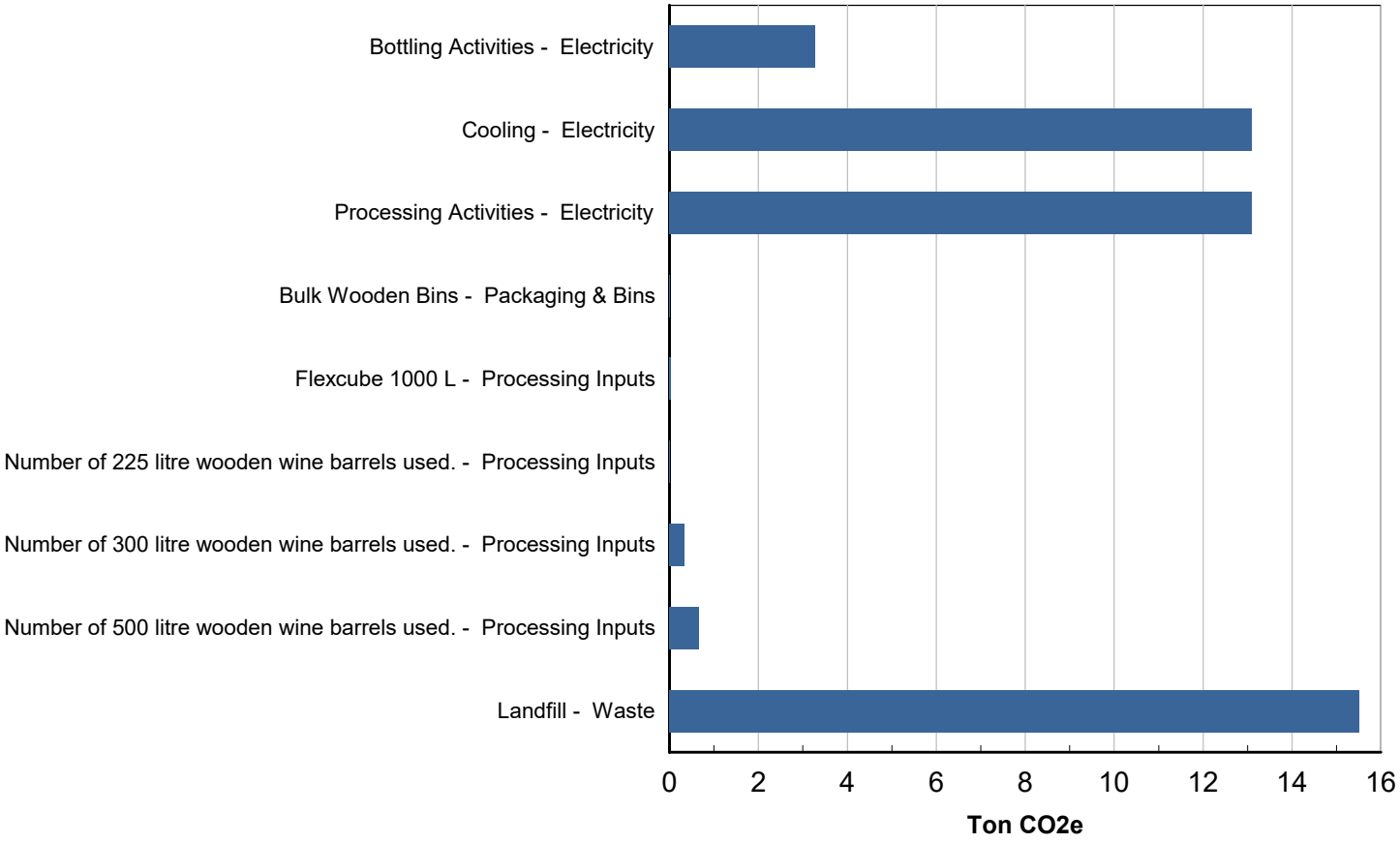
# Winery - Activity Breakdown




| Activity Breakdown | Tonne $CO_2e$ | % |
|---|---|---|
| Bottling Activities - Electricity | 3.28 | 7.11 |
| Cooling - Electricity | 13.10 | 28.45 |
| Processing Activities - Electricity | 13.10 | 28.45 |
| Bulk Wooden Bins - Packaging & Bins | 0.01 | 0.03 |
| Flexcube 1000 L - Processing Inputs | 0.04 | 0.09 |
| Number of 225 litre wooden wine barrels used. - Processing Inputs | 0.01 | 0.02 |
| Number of 300 litre wooden wine barrels used. - Processing Inputs | 0.34 | 0.73 |
| Number of 500 litre wooden wine barrels used. - Processing Inputs | 0.66 | 1.44 |
| Landfill - Waste | 15.51 | 33.68 |
| **Total** | **46.06** | **100.00** |

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**Dataset:** 4/20/2026 1:59:48PM

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# Detailed Carbon Emissions Breakdown

| Detailed Activities | Tonne $CO_2e$ | % |
|---|---|---|
| Electricity - Grid - Processing Activities | 13.07 | 28.37 |
| Electricity - Grid - Cooling | 13.06 | 28.37 |
| Electricity - Grid - Bottling Activities | 3.27 | 7.09 |
| Electricity - PV - Processing Activities | 0.04 | 0.09 |
| Electricity - PV - Cooling | 0.04 | 0.09 |
| Electricity - PV - Bottling Activities | 0.01 | 0.02 |
| Processing Inputs - Barrels - Number of 225 litre wooden wine barrels used. | 0.01 | 0.02 |
| Processing Inputs - Barrels - Number of 300 litre wooden wine barrels used. | 0.34 | 0.73 |
| Processing Inputs - Barrels - Number of 500 litre wooden wine barrels used. | 0.66 | 1.44 |
| Processing Inputs - Wine Processing Inputs - Flexcube 1000 L | 0.04 | 0.09 |
| Waste - Non-Organic Waste - Landfill | 15.51 | 33.68 |
| Packaging & Bins - Bulk Wooden Bins - Bulk Wooden Bins | 0.01 | 0.03 |
| **Total** | **46.06** | **100.00** |

**Business Name:** Forrester Vineyards

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# Winery Consumption Benchmarks

| | |
|---|---|
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| **Dataset:** | 4/20/2026 1:59:48PM |
| **Data Collection Period:** | Jan 2025 to Dec 2025 |