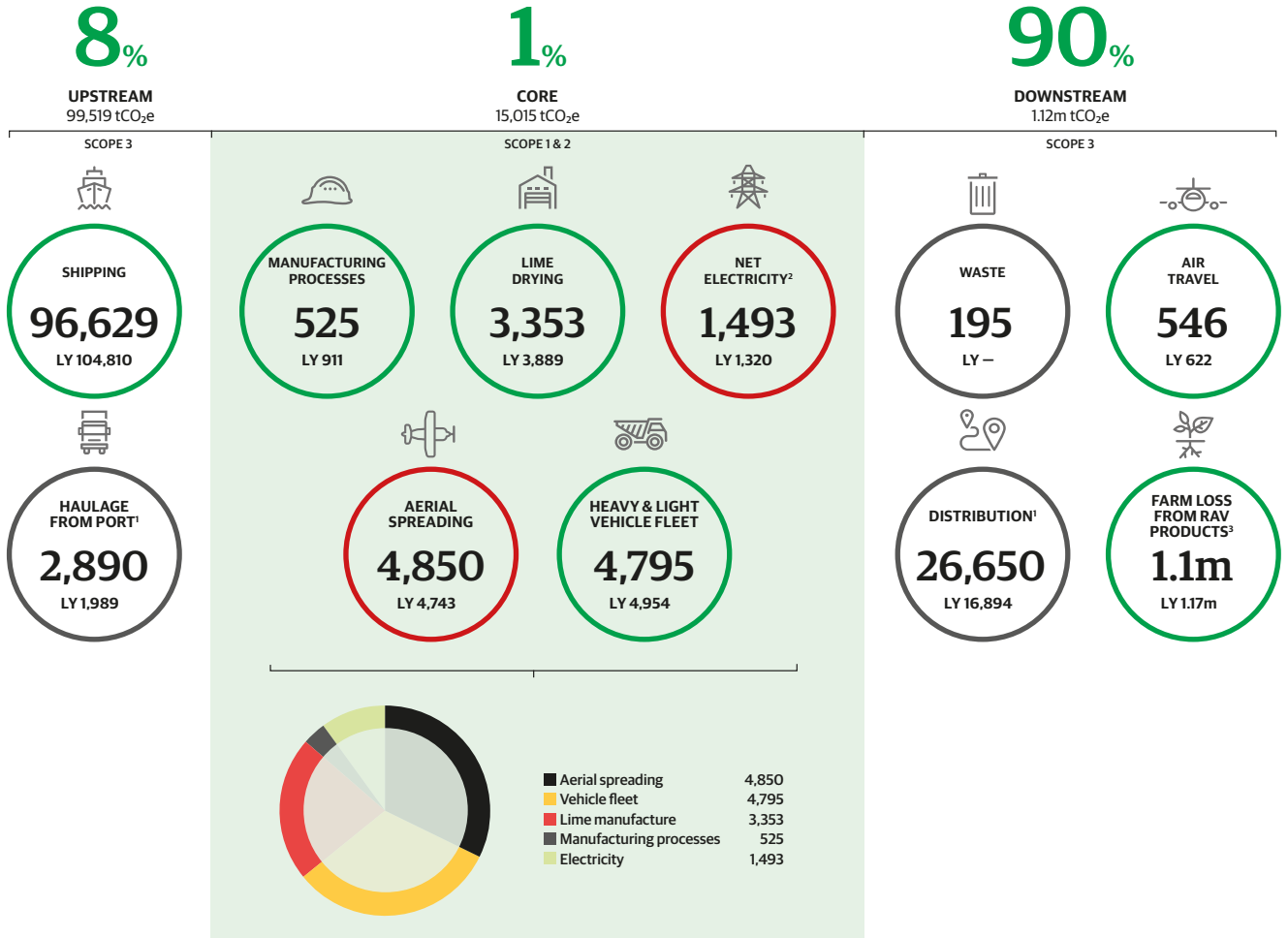


Carbon footprint

Ravensdown calendar year 2019 Greenhouse Gas Inventory

All totals represented as tonnes of carbon dioxide equivalent

● Down ● Up ● No material change or new addition



Note:

Scope 1: sources owned by company. **Scope 2:** purchased electricity. **Scope 3:** sources not owned or directly controlled (<https://ghgprotocol.org/corporate-standard>)

¹ new, NZ-specific emissions factor used for distribution this year; no actual emissions increase occurred.

² Net electricity includes electricity purchased from the grid, electricity exported back to the grid from generation and transmission losses.

³ N fertiliser (N₂O) loss and Lime (CaCO₃) loss.

1.23m

Ravensdown Carbon Footprint

(tCO₂-e) CY

2018 **1.3m**

14,905

Scope 1 and 2

Target: 2030 target 15% reduction from CY 2017 / 2018 levels

2018 **15,664**





 TRUSTED AND LEADING CONT.

Ravensdown believes that every company has a responsibility to take action against climate change. In the two years since Ravensdown first reported its carbon footprint, the carbon footprinting methodology has matured resulting in more robust data, ease in collecting and calculating the footprint, accuracy in results and more in-depth analysis of performance. Total emissions have reduced by 5.3% (69,234 tCO₂e), which is good progress towards our target reduction. Carbon intensity per tonne of production also shows a downward trend.

For the 2019 calendar year, Ravensdown total organisational emissions are 1,237,619 tCO₂e. Scope 1 emissions decreased (6.7%), scope 2 emissions decreased

(17%) and scope 3 emissions decreased (5%). The carbon footprint is calculated by calendar year; therefore, any COVID-19 impacts did not contribute to this reduction. This year, progress included:

- A conscious effort to minimise the use of coal in lime processing. By careful mine planning, assessment of the need for drying, and some infrastructure improvements, coal use reduced by 14% this year.
- A scoping study to assess available alternative fuels to coal has identified some promising renewable and carbon neutral options. We have trialled wood chip as an alternative to coal for firing the driers and are progressing with further trials in the coming year.
- Diesel is used to restart the sulphuric acid plant after annual maintenance. This year we have achieved cleaner diesel burning due to improved control of the air/fuel mixture at Christchurch following success at Napier and Dunedin. Napier in particular has also boosted the energy efficiency of its restarts.
- Increased adoption of N-Protect, the coated urea product that helps reduce on-farm emissions resulted in an emissions reduction of 6-7%.
- We source from gas-based (not coal) urea suppliers. Due to our supplier's scale and efficiency, the carbon footprint of offshore manufacturing and transport is still less than domestic manufacture.

- We source phosphate rock from Phosboucraa, which has an outstanding sustainability record, including 99% renewable energy consumption, 100% desalinated water consumption, with excess distributed to the community, and 100% of profits distributed to social and community projects.
- Transport emissions from truck haulage increased substantially due to a new emissions factor; there was no actual increase in activities.
- There are limited opportunities for reducing the footprint resulting from aircraft operation at this point, but Aerowork met with technical specialists at Air New Zealand this year and identified many common opportunities to improve aircraft fuel efficiency and drive change.

Ravensdown collaborates with other businesses through membership of the Sustainable Business Council, Climate Leaders Coalition and Aotearoa Circle.

Limited assurance for our GHG emissions inventory has been provided by EY. Their statement is available at <https://integratedreporting.ravensdown.co.nz/>

Each sulphuric acid plant generates electricity. More efficient processes result in less diesel used in restarts.



Aglime helps regulate soil pH. Coal used to dry aglime fell by 14%.