



Carbon neutral by 2030 Katanning Research Station

The Department of Primary Industries and Regional Development's (DPIRD) Katanning Research Station (KRS) is developing practical techniques and methods for mitigating carbon emissions from the livestock industry.

This research will help the livestock industry in Western Australia (WA) access anticipated future markets for carbon neutral food and fibre products.

Our plan involves:



**Permanently
revegetating**
as much non-arable
land as possible



Using **methane
inhibiting feeds,**
**improving flock
productivity and
pastures**



Applying techniques that will
also **restore salt-affected
land, improve soil and
increase agricultural
productivity**

Katanning Research Station

KRS is located 5km east of Katanning in the Great Southern Region of Western Australia and is DPIRD’s primary facility for sheep research. The farm is approximately 2100ha, with 1700ha of arable land (suitable for cropping and grazing) and 400ha of non-arable land that is mainly natural vegetation, with saline affected gullies, flats and some areas of tree planting.

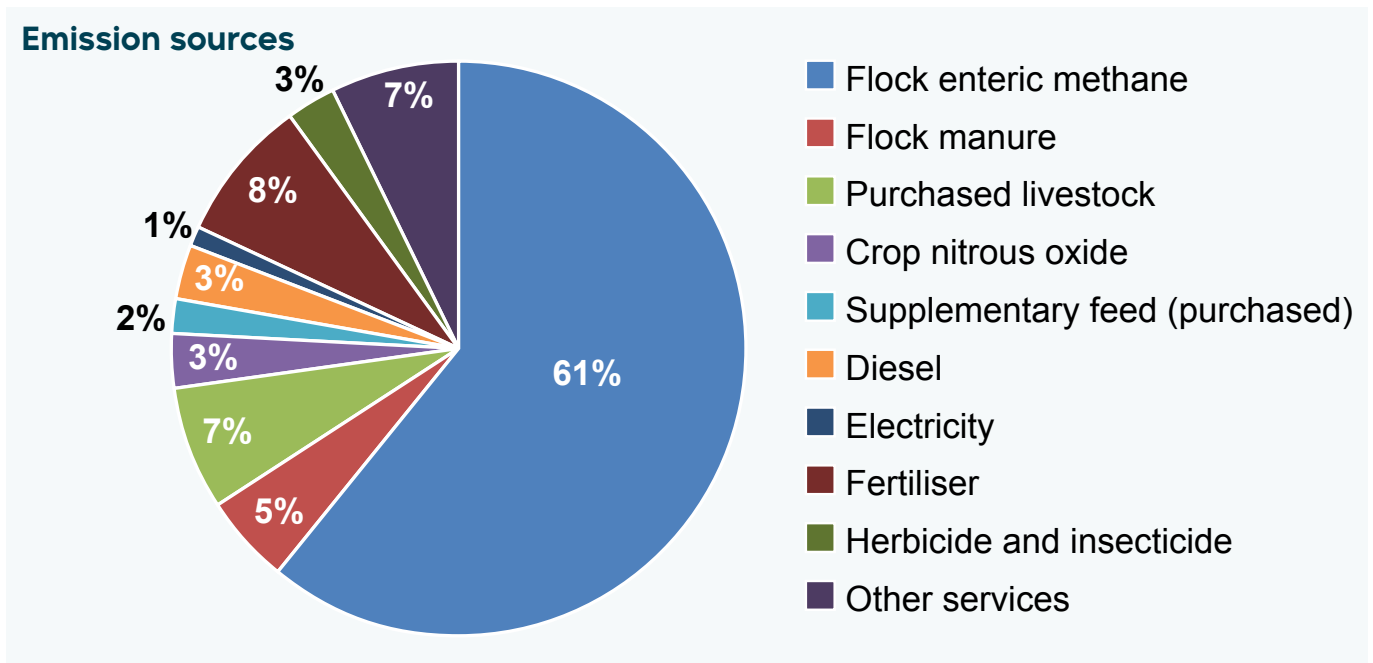
Total baseline emissions, excluding soil and vegetation carbon for KRS were:

2018 **2406**
tonnes of CO₂ e

2019 **2553**
tonnes of CO₂ e

Our baseline emissions

DPIRD worked with Integrity Ag to undertake a baseline organisational carbon footprint assessment. This included upstream emissions, such as emissions from the manufacture of agrichemicals, transport and purchased livestock.



Emission intensity by product (kg CO₂-e/kg product)

Product	Lamb liveweight gain	Greasy wool	Oaten hay	Canola	Lupins
2018	9.5	30.2	0.22	1.21	0.59
2019	9.9	31.6	0.28	0.78	0.48

Our emissions intensities by product were higher than other published results and previous research from comparable WA systems. This is likely due to our flock being part of ongoing research projects.

CO₂: carbon dioxide e: equivalent t: tonnes kg: kilograms

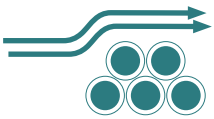
Opportunities for reducing emissions

DPIRD's research team has identified a range of options for reducing emissions across the farm operations:



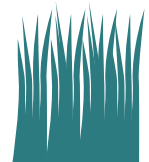
Reducing total sheep numbers by improving flock efficiency and carryover animal numbers.

Improving pasture legume content prior to crop to reduce nitrogen fertiliser use and improving weed control. Reducing the proportion of crop or changing crop types.



Preventing soil erosion by wind and water through improving soil characteristics by claying and liming.

Changing grazing and pasture species such as alternate legumes, saltbush and browse shrubs and rotational grazing to reduce supplementary feeding.



Trialling methane-mitigating feedstuffs including legumes, 3NOP, Asparagopsis and breeding low methane sheep.

Opportunities for sequestering (storing) carbon

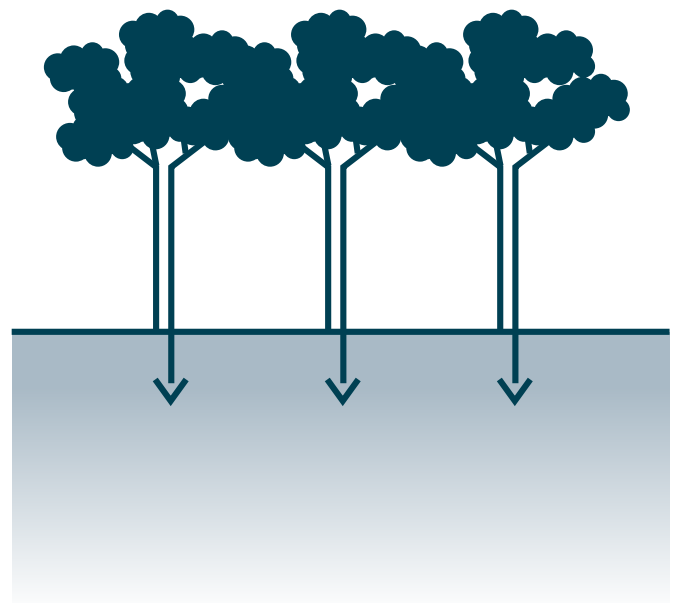
Developing saltbush systems and fodder shrubs

Including windbreaks, shelterbelts, shelter paddocks and alley farming in farm design

Rehabilitating remnant vegetation

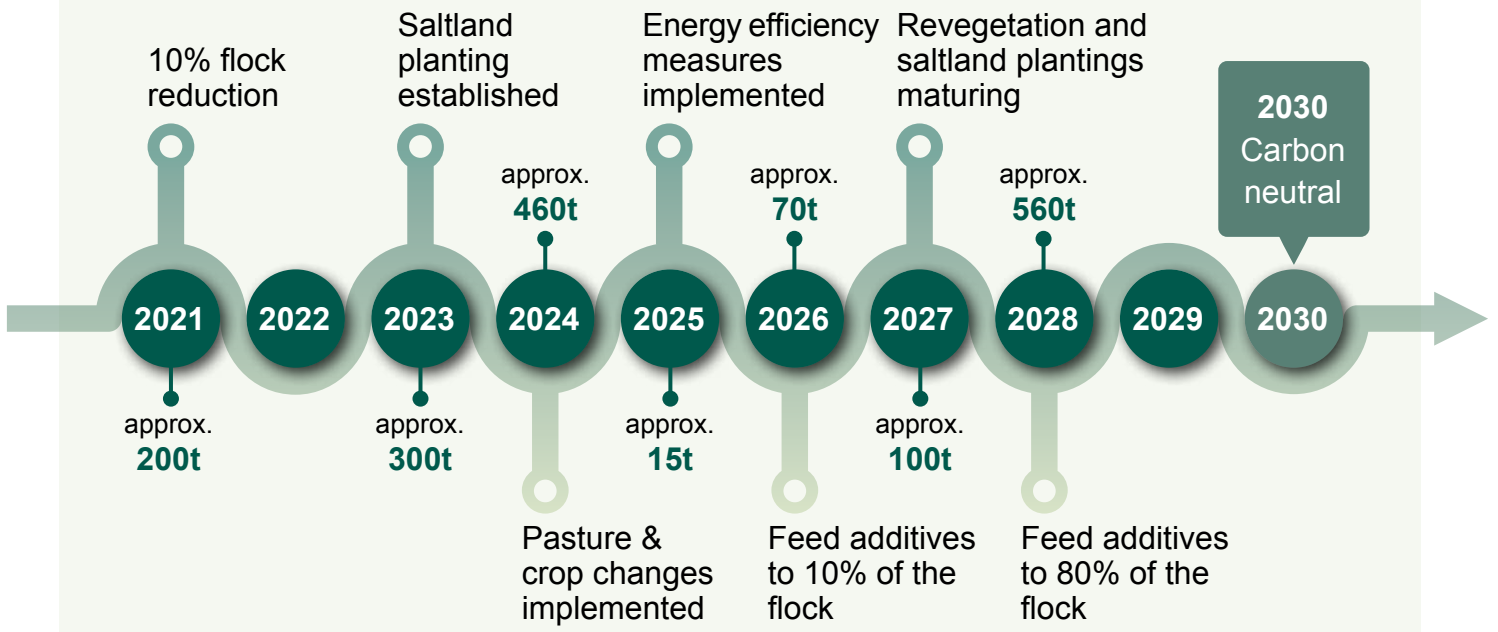
Growing permanent biodiverse mallee, eucalypt and sandalwood plantations

Incorporating carbon into the soil via green and brown manuring and possible addition of biochar



Pathway to carbon neutrality

This is our 'best bet' plan – it combines the most likely and practical changes to sheep and cropping management, together with adoption of the most financially-viable mitigations that could be applied to reduce emissions and maximise carbon in soil and vegetation. It's dependant on some assumptions, such as methane inhibiting feed being commercially available within the timeframe.



More information

agric.wa.gov.au/krs-carbon-neutral

Contact

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