Department of
Primary Industries and Regional Development

GOVERNMENT OF WESTERN AUSTRALIA

We're working for Western Australia.

Carbon neutral by 2030
Katanning Research Station

The Katanning Research Station (KRS) will be used to develop and demonstrate practical techniques and methods for mitigating carbon emissions from the livestock industry in WA. This research will help the livestock industry access anticipated future markets for carbon neutral food and fibre products.

Our plan involves:

Permanently revegetating as much non-arable land as possible

Using new methane inhibiting feeds, like the Asparagopsis species of seaweed

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

Katanning Research Station

Katanning Research Station (KRS) is located 5km east of Katanning in the Great Southern Region of Western Australia. KRS 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 emissions, excluding soil and vegetation carbon for KRS were:

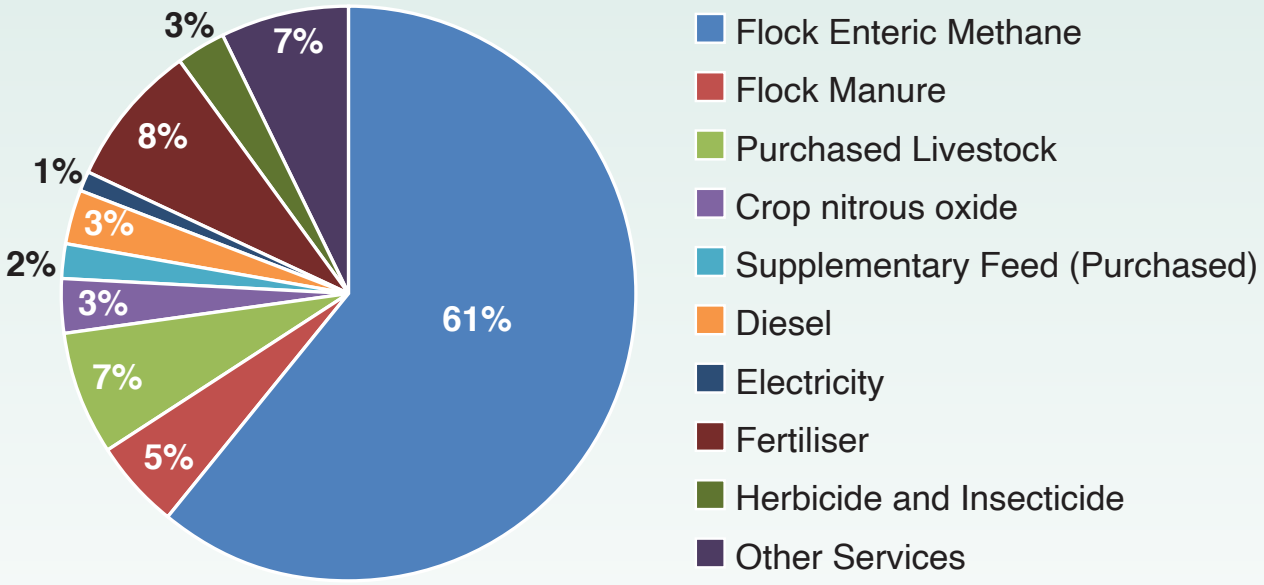
2018 **2406** tonnes of CO_2 e

2019 **2553** tonnes of CO_2 e

Our 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 sources



Emission intensity by product (kg CO_2-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

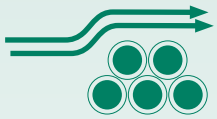
Our emissions intensities by product were higher than other published results and previous research from comparable Western Australian (WA) systems. This is likely due to our flock being part of ongoing research projects.

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 mating all replacement ewes to Merino sires or by buying in replacement maiden ewes or adult ewes.

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.



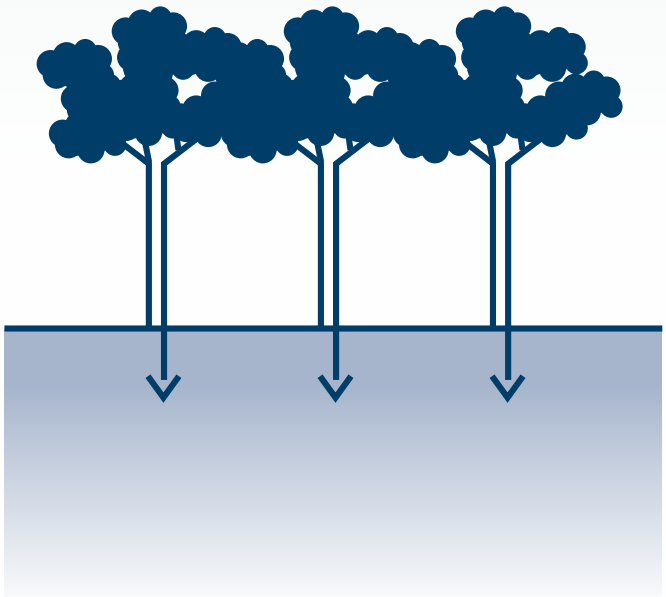
Prevent soil erosion by wind/water and improving soil characteristics by claying and liming.

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

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.

The options considered for carbon sequestration utilising vegetation were:



Saltbush systems and fodder shrubs

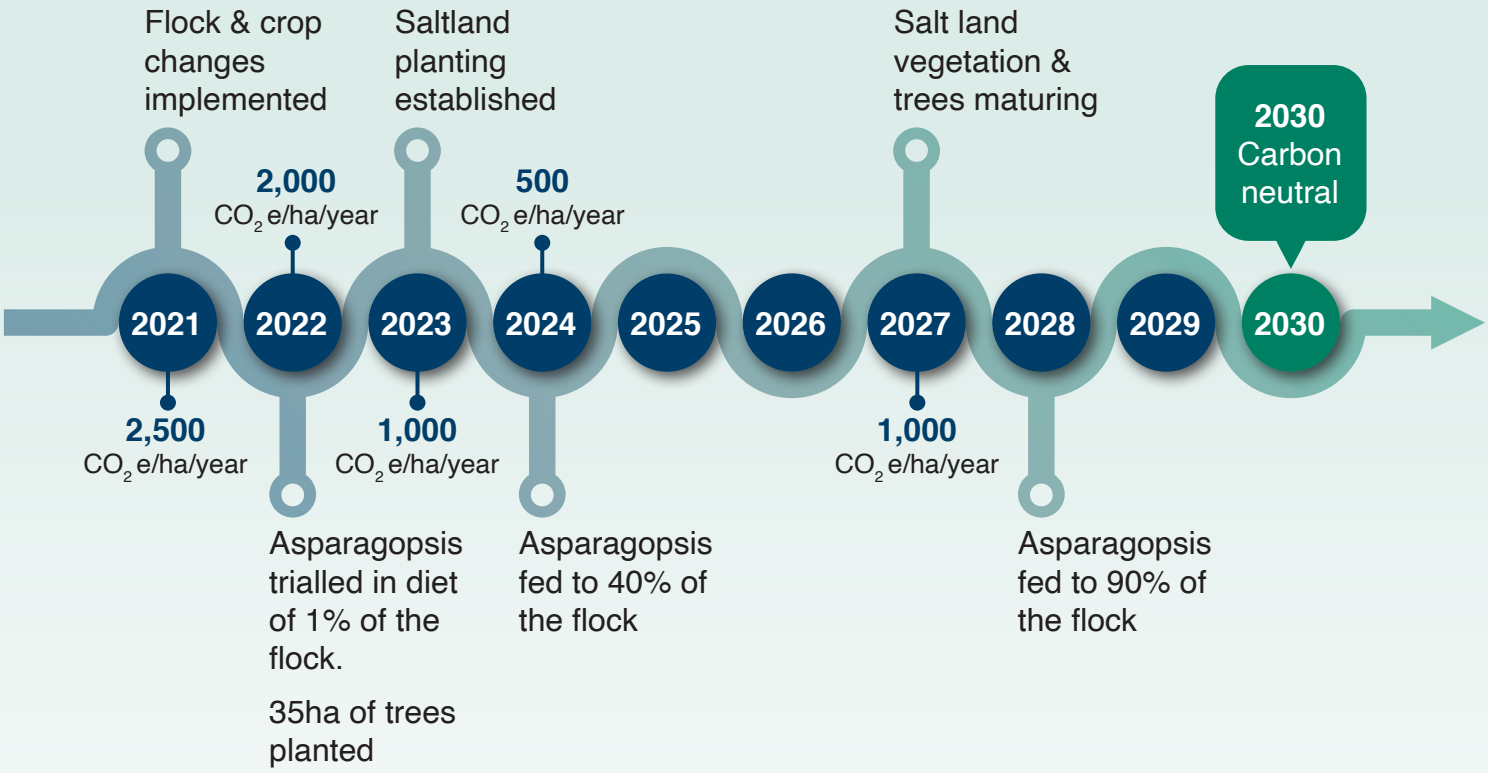
Windbreaks, shelterbelts, shelter paddocks and alley farming

Remnant vegetation rehabilitation

Permanent eucalypt and Sandalwood plantations

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 soil carbon. It's dependant on some assumptions, such as methane inhibiting feed being commercially available within the timeframe.



For more information scan the QR code

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