Department of Primary Industries and Regional Development



Protect Grow Innovate

# Sheep and greenhouse gas emissions

Western Australian sheep numbers have declined by 65% over the past 30 years, yet the industry's gross value of production has increased from \$0.9 billion to \$1.3 billion (1991–2020). Farmers are generating more value from fewer animals.

### 2020 sheep industry snapshot

WA sheep industry emissions in 2020 were around 3.21 Mt  $CO_2e$  (million tonnes Carbon dioxide equivalent) with 75% from methane (enteric fermentation) and 12% from agricultural soils (nitrous oxide) which includes manure onto pastures.



#### **Mitigation challenges**

The path to market for anti-methanogenic feed additives will be a time-consuming process. The high costs and low efficacy in extensive grazing systems may also limit adoption of feed additives There is also the need for delivery methods for extensively grazed livestock.

#### Sheep industry emission sources

Emissions are classified as Scope 1,2 and 3. This separation aids in identifying the source of emissions.

Scope 1: All emissions on-farm from sheep production.

Scope 2: Emissions from electricity.

**Scope 3:** Emissions associated with producing inputs, both prefarm and post-farm.



2020 estimated emissions from the sheep industry \*Only pre-farm scope 3 emissions are included here.

#### **DPIRD** sheep emission research priorities

- Researching emission reduction with the GreenFeed methane measuring machines
- Quantifying emissions on existing forages and pastures and assessing the potential of forages to reduce methane emissions
- Undertaking trials of feed additives.
- · Genetic screening for low-emissions animals
- Running whole-of-farm trials to design system solutions that increase production efficiency and lower emissions
- Benchmarking emissions intensity sheep commodities in a global context.

## Ways to reduce emissions in the sheep industry:

- Breed and manage livestock
  for more efficient growth and early turnoff
- Review grazing practices and systems to lower inputs
- Incorporate forages that reduce methane emissions in livestock grazing systems
- Adopt anti-methanogenic feed additives, once available
- Implement best-practice soil management

- Improve fertiliser use efficiency and investigate lower-emission fertilisers
- Improve manure management and methane capture
- Invest in on-farm renewable energy
- Electrify machinery as WA's electricity grid decarbonises
- Increase carbon sequestration (for example by planting trees and retaining native vegetation).

Developing knowledge of carbon accounting and benchmarking supports achieving reductions.

#### **More information**

Subscribe to the Climate Resilience mailing list for updates on climate news, emissions and events.



### Future proofing regional WA

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