Department of
Primary Industries and
Regional Development

GOVERNMENT OF
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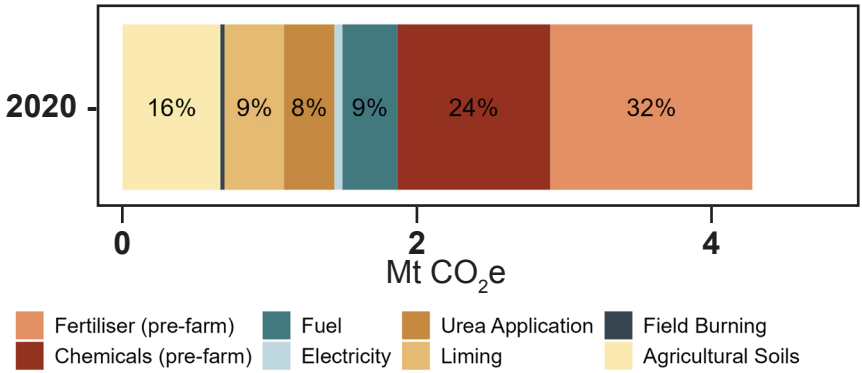
Grains and greenhouse gas emissions

The grains industry is Western Australia's largest agricultural industry in terms of gross value of production. It is the second largest in terms of greenhouse gas emissions.

2020 grains industry snapshot

Emissions from the WA grains industry is estimated to have been 4.27 Mt CO_2e (million tonnes Carbon dioxide equivalent) in 2020. About 58% of emissions occurred off-farm, in the production of inputs (fertilisers 32%; chemicals 24%). On-farm, the largest emitter was agricultural soils (16% of total emissions), followed by fuel use and the application of urea and lime (9% each).



Mitigation challenges

Emissions from agricultural production are generally considered hard to abate and some agricultural activities are more difficult to mitigate than other industries.

Many of the factors that influence production and profitability, such as fertiliser use, influence emissions. Higher yields require a proportionally higher level of inputs such as fertilisers, chemicals, and fuels. The need to capitalise on good seasons will likely lead to nitrogen use being maximised rather than optimised, increasing emissions.

More efficient use of fertilisers is good for farm profitability whilst also reducing emissions.

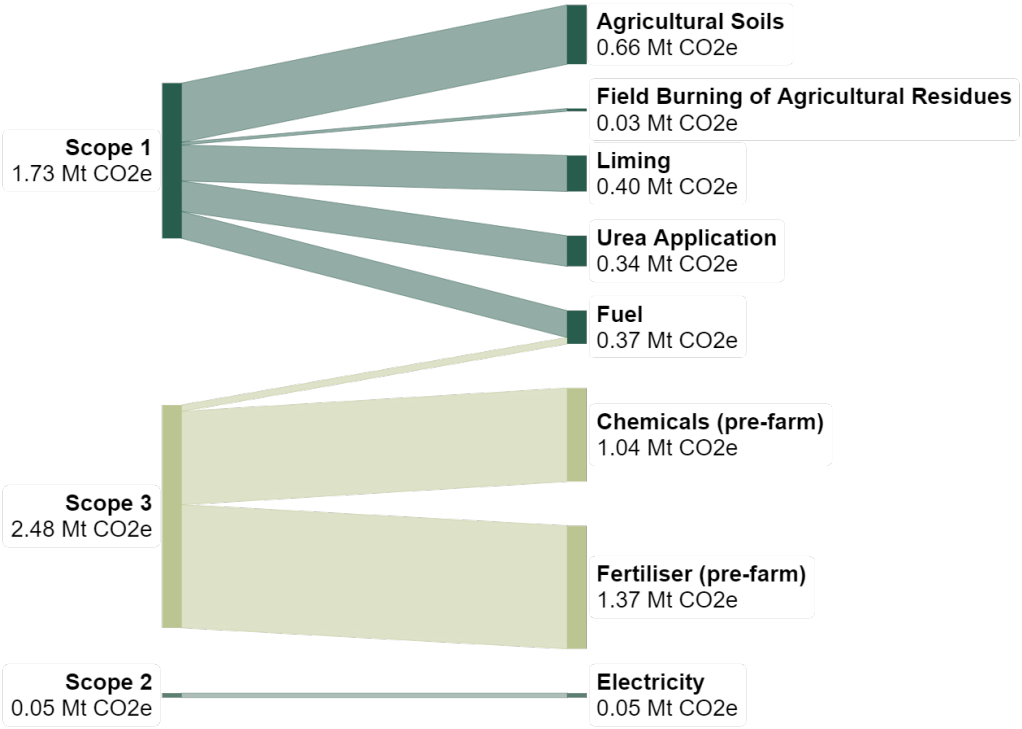
Grains industry emission sources

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

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

Scope 2: Emissions from purchased electricity.

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



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

Ways to reduce emissions from grain production:

- Improve nitrogen fertiliser use efficiency
- Investigate lower emissions fertilisers
- Investigate new precision technologies
- Increase carbon sequestration (e.g. by planting trees and retaining native vegetation)
- Implement best-practice soil management
- Electrify machinery as WA's electricity grid decarbonises
- Developing knowledge of carbon accounting and benchmarking supports achieving reductions.

DPIRD grains emission research priorities

- Quantifying nitrogen use efficiency under different management
- Optimising cropping systems for yields, profit and emissions reduction
- Developing new cropping systems with lowered emissions
- Modelling emissions under different production scenarios including liming strategies, fertiliser timing and rotation.

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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