fact sheet

A Beyond Zero Future for South East NSW

Livestock Emissions

Why cows should eat seaweed

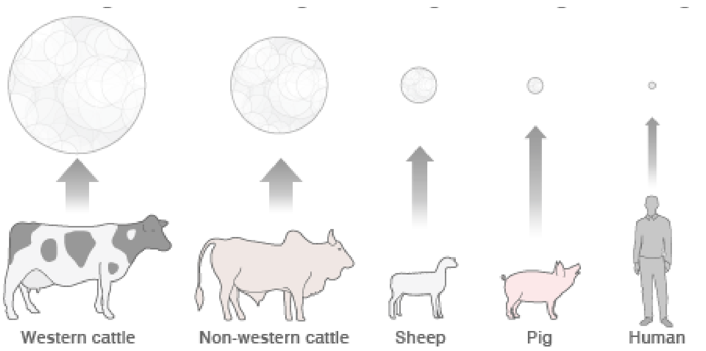
Why is methane important?

- Methane (CH_4) from burping livestock is a major contributor to world green-house gas emissions.
- In South East Region NSW 75% of all agricultural emissions are from live-stock.
- Methane is 28 times more potent as a climate warming agent than carbon dioxide (CO_2) over 100 years and 80 times more potent over the critical next 20 years.
- So, while 20% of livestock burp is CO_2, it is methane that is doing most damage to the climate.
- Since 1950, atmospheric methane has increased 70% while carbon dioxide has increased 28%.[1]

Which animals produce the most methane?

Every year, each animal generates methane [2,3] equivalent to tonnes of CO_2:

Dairy cow	146	kg CH_4	4.1	tCO_2-e
Beef cow	55	kg CH_4	1.5	tCO_2-e
Dry sheep	8	kg CH_4	0.22	tCO_2-e
Human	0.05	kg CH_4	0.0014	tCO_2-e



SOURCE: Nasa's Goddard Institute for Space Science

The annual 4.1 $tC0_2$.e from a dairy cow is about the same as the 3.8 $tC0_2$.e emitted by an average petrol car driving 15,000km in a year.

How much methane is burped locally?

In South East Region NSW shires with large grazing areas, **methane from livestock** contributed the following to total shire emissions in 2019:

- Yass Valley 21% of 418,000 tCO_2-e
- Snowy Valleys 16% of 611,000 tCO_2-e
- Snowy Monaro 36% of 735,000 tCO_2-e
- Bega Valley 18% of 494,000 tCO_2-e

Reducing livestock emissions

- There are a number of methods for reducing methane emissions from ruminant digestive processes, including dietary supplements, selective breeding and optimising reproductive cycles.
- The **most promising method** is the regular addition of small amounts of processed *Asparagopsis* seaweed to ruminant diets.[4]

So, why should farm animals be eating seaweed?

CSIRO research indicates that *Asparagopsis* supple-ments can cut ruminant methane emissions by 80%-90%.

- Half (51%) of all agricultural emissions (which represent 22% of total emissions) would be avoided if all ruminant diets were supplemented with *Asparagopsis*.
- *Asparagopsis* can be grown commercially and locally along the south east NSW coast, offering economic and environmental benefits from the development of a new industry.[5,6]

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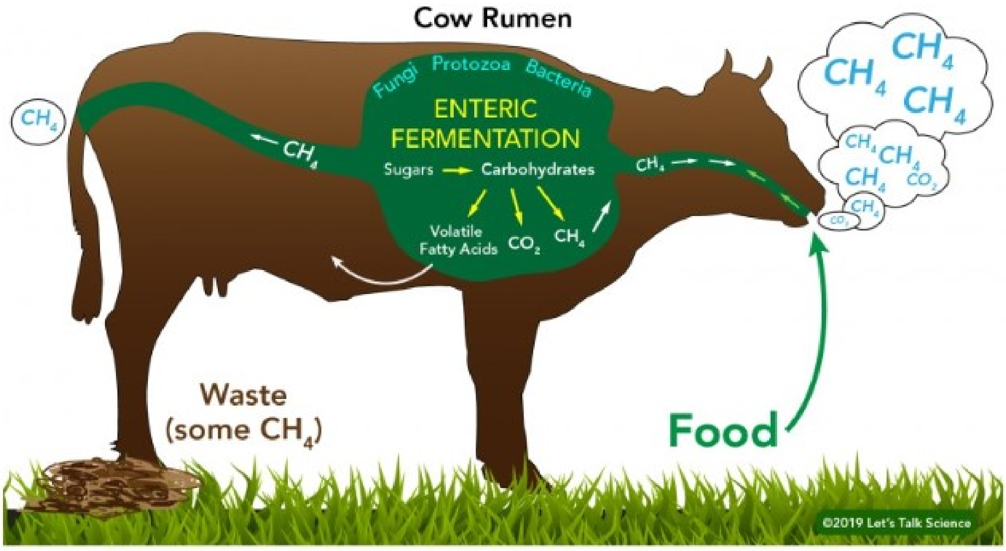
What will it cost?

- It is too early to say what the cost to farmers of *Asparagopsis* supplements will be.
- While the current federal Carbon Solutions Fund (CSF) price of $16/tCO_2$-e would be too low to cover it, at the international carbon price of $80/tCO_2$-e , farmers could potentially cover the cost with payments received from carbon markets. These would amount to $278 per dairy cow, $105 per beef cow and $10 per sheep per year.
- Food and fibre consumers may also pay a price premium for certified low-methane products which would benefit the producer.

Would you like to do more?

- **Climate change has cut Australian farm profits by 22%** over the last 20 years.[7]
- Through avoiding methane emissions from livestock, **farmers can make a major contribution** to climate solutions.
- *Farmers for Climate Action* are working to[8]:
    - establish a *Land and Environment Investment Fund*
    - support innovation and attract large-scale investment in carbon farming.
- Government has a key role to play in generating an easy-to-access agri-carbon market.



Footnotes

[1] United States Environmental Protection Agency. Climate Change Indicators: Atmospheric Concentrations of Greenhouse Gases.

[2] Moate, P. *et al*. 'Reducing the carbon footprint of Australian production by mitigation of enteric methane emissions'. *Animal Prod Sci.* 2016;56:1017-1034

[3] Crutzen, P. *et al*. rt. 'Methane production by domestic animals, wild ruminants, other herbivorous fauna, and humans'. Tellus Seriew B, *Chemical and physical meteorology*. 1986,38: 271-284. doi:10.3402/tellusb.v38i3-4.15135

[4] Kinley, R. (2020). 'Mitigating the carbon footprint and improving productivity of ruminant livestock agriculture using a red seaweed'. *Journal of Cleaner Production* 2020;259:120836. doi:10.1016/j.jclepro.2020.120836

[5] Kelly, J. (2020). *Australian Seaweed Industry Blueprint*. Australian Seaweed Institute. (Available)

[6] https://www.seaforest.com.au/

[7] Australian Bureau of Agricultural and Resource Economics and Sciences

[8] Farmers for Climate Action Regional Horizons Plan

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