

## Effect of carbon footprint per tonne of feed on overall carbon footprint per kg Fat Protein Corrected Milk

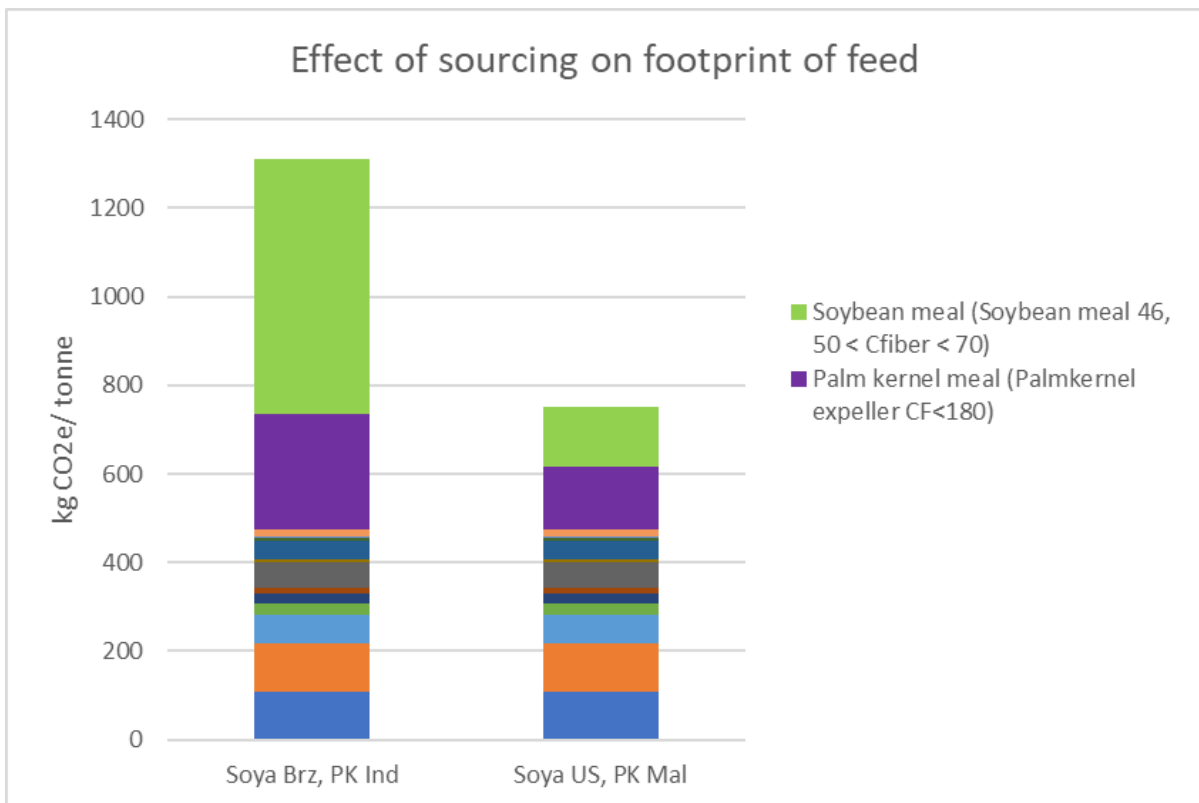
Halving carbon footprint of feed and keeping nutritional content the same can decrease carbon footprint per kg FPCM by approximately 10%.

Taking soya and palm kernel as an example just changing country of origin for sourcing the raw materials can have big impacts on the footprint of the feed  $\boxtimes$  decreasing from 1312 kg CO<sub>2</sub>e/ tonne to 752 kg CO<sub>2</sub>e/ tonne. Feed stays the same in terms of nutritional profile, inclusion rates of raw materials and at approximately the same cost.

Feed management

+ Add by ingredients    + Add by impacts    Copy (0)    Export (0)

NAME	ADDITIONAL INFO	MANUFACTURING DATE $\uparrow$	CLIMATE CHANGE (kg CO <sub>2</sub> e)	METHANE (kg)	GWP - LULUC (kg CO <sub>2</sub> e)	ACIDIFICATION (mol H <sup>+</sup> e)	AMMONIA (kg)	EUTROP. (WAT.) (kg Pe)
<input type="checkbox"/> Compound feed 1 Bra/Ind	SBM Brazil, Palm Indonesia	11/9/2022	1312.4869	4.0835	551.8834	7.7448	1.43983	0.15
<input type="checkbox"/> Compound feed 2 US/Mal	SBM US, Palm Malaysia	11/9/2022	752.1689	3.7697	77.9658	7.7884	1.45262	0.18



## Can you formulate rations without soya?

Soya has one of the biggest impacts on carbon footprint in feed and the diet if associated with deforestation. In this example you can formulate a nutritionally equal specification and include in the same diet to **reduce carbon footprint of feed by 30% and reduce cost of feed by £9/tonne.**

		<i>Soya</i>	<i>No Soya</i>	<i>Difference</i>
<i>Carbon Footprint of Compound</i>	kg CO2e/tonne	1198	847	-351
<i>Compound Cost*</i>	£/tonne	259	250	-9
<i>Carbon Footprint of Ration</i>	kg CO2e per ration	17.4	14.6	-3
<i>Ration Cost</i>	£/ration	3.69	3.62	-0.07
<i>Milk Yield</i>	kg	31.7	31.9	+0.20

\*No soya compound less 0.5% crude protein but equal metabolizable protein, energy and fibre

## Using a typical UK ration

When including the 2 compound feeds with similar nutritional profile at the same rate in a ration (grass silage 9.6kg DM, wholecrop silage 2.7kg DM, 8kg compound, 1.6kg blend; 50:50 maize: protected rape) but with different carbon footprints it can decrease the carbon footprint of milk by **approximately 6%.**

		<i>Soya</i>	<i>No Soya</i>
<i>Carbon Footprint per kg FPCM</i>	kg CO2e/ FPCM	<b>1.75</b>	<b>1.65</b>
<i>Ration Contribution to Footprint</i>	%	38	35
<i>Enteric Methane Contribution to Footprint</i>	%	34	36

## Halving the carbon footprint of feed has an even bigger impact

When included into MyMilkPrint to calculate the carbon footprint per kg FPCM:

- Carbon footprint of the compound feed decreases by **50%**
- The footprint of the ration decreases by **30%**
- Ration contribution from feed decreases by **26%**
- Enteric methane stays the same because nutrient supply and animal numbers have not changed
- **Carbon Footprint per kg FPCM decreases by 10%**

	<i>Compound Footprint, kg CO2e per tonne</i>	<i>Ration, kg CO2e per ration</i>	<i>Carbon Footprint per kg FPCM</i>
<i>High Carbon Footprint Compound</i>	1500	19.8	1.77
<i>Low Carbon Footprint Compound</i>	750	13.8	1.58

\*100 cow herd, 31.5kg milk, 4.2 BF, 3.3 Prot, AFC 26 months, replacement rate 30%

## Summary

Many advantages lie within formulation to decrease footprint of compound feed and have an impact in the total diet to significantly affect carbon footprint per kg FPCM. Care must be taken to balance diets and avoid decreasing milk yield but the possibility remains to balance diets and reduce the impact of feed and overall ration on the end carbon footprint per kg FPCM.



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