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Letter to the editor

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LETTER

To the editor,

A recent 2020 study published in the Journal of Applied Animal Nutrition (Wilkinson and Young, 2020) challenged the notion that soya milk made directly from soya beans is a more efficient process than producing milk from dairy cows: 'Based on information from the UK Department for Environment, Food and Rural Affairs (Personal communication, 2017), it has been estimated that between 92,000 and 173,000 tonnes of soya bean meal is used in dairy cow diets in the UK (Young, 2017). Total milk production in the UK was 14,713 million litres in 2017/18 (Statista, 2019b), which can be calculated as the yield of dairy cow milk being 85 litres per kg soya bean meal consumed.'

The authors divide 14,713 million litres (c. 1 kg equivalent) by 173,000 to give 85 litres per kg soya bean consumed. If they used the lower value, 92,000, it would calculate at around 163 litres per kg soya bean meal consumed. From this, according to the authors the less soyabean meal fed to a dairy cow the more cow's milk you can make which is nonsensical.

The amount of cow's milk produced from soya bean meal is better represented as a percentage of dry matter (DM) consumed. A dairy cow will produce an average of 28 litres per day over a 10-month period, with more or less being produced depending on the lactation stage.[1] For instance, a high yielding cow may produce as much as 60 litres in a day during peak lactation. It is impossible for a dairy cow to produce 85 litres or more milk from 1 kg soyabean meal, when on average a dairy cow only produces 28 litres of milk a day. Furthermore, a dairy cow does not consume a ration of 100% soyabean meal.

In the UK most of the DM a dairy cow consumes comes from grazed grass, grass silage, maize silage and cereals. As a percentage of DM, the amount of soyabean meal fed may range from between 7% to just over 9% of the ration. Using a UK industry example (AHDB, n.d.): assuming a high yielding dairy cow of around 500 kg in weight producing 35 litres of milk/day, the cow would have a daily feed intake containing around 21 kg of DM of which about 1.5 kg DM would be from soyabean meal. Each kg of DM would therefore produce 1.67 litres of milk (35 divided by 21). Not quite the 85 litres per kg claimed by the authors.

In contrast, domestically you may get a yield of around 5 litres of soya milk per kg of whole soyabeans and commercially squeeze out up to 7.5 litres per kg. The dairy cow example also uses soyabean meal, which is around 80% of whole soybeans.

Unfortunately, the authors errant calculation has been picked up in the farming press, with the UK's Farmers Weekly headlining: 'Cow's milk better for the planet than plant-based alternatives.'[2]

Soyabean meal predominantly used in the UK for livestock production comes from genetically modified (GM) soya beans grown in South America, mostly Argentina. Most of the soyabean meal is derived from GM crops. A small amount of non-GM soyabeans are grown, which is only

[1] https://www.compassioninfoodbusiness.com/awards/good-dairy-award/standard-intenstive-milk-production/.

[2] https://www.fwi.co.uk/livestock/dairy/cows-milk-better-for-the-planet-than-plant-based-alternatives.

segregated from GM soyabeans where a premium price is paid (e.g. for direct human consumption). Non-GM soyabeans which are not segregated are mixed with GM soyabeans. GM soyabeans and GM soyabean meal is not directly used in UK food production, and instead is indirectly consumed through livestock.

In the UK there is no evidence to suggest GM soyabeans or soyabean meal is used in soya milk production. Most soya used in UK plant-milks originates from Europe, where as a legume soya beans add to soil fertility, help reduce the need for manufactured fertiliser and help to rebuild dysfunctional soils. Soya bean milk in the UK is not associated with deforestation, but dairy cow milk is.

According to the Soil Association (2010), the soyabean equivalent used to produce a UK citizen's annual intake of meat and dairy products is about 54 kg per person (1.7 kg for milk directly consumed). This is predominantly sourced from the destruction of rainforests in Latin America.

A person regularly eating soyabean derived products, would consume between 9-18 kg of soybean equivalent per year (my estimation) which is not sourced from the destruction of rainforests.

Dairy cows and livestock are unequivocally behind the use and growth of soya in South America and associated deforestation, not people eating tofu or drinking soya milk.

In summary

- 1 kg of GM soyabean meal, based on DM consumed, produces around 1.67 litres of dairy cow milk.
- 1 kg of soyabeans produces up to 7.5 litres of commercial soya milk.

Furthermore, the authors declare no conflict of interest and do not declare the source of funding for the study. However, the study takes reference for their assertions from 'The Sustainable Food Trust' with multiple livestock and dairy interests, including one of the authors Richard Young. This omission also needs to corrected for openness.

We urge you to investigate this study published in the 'Journal of Applied Animal Nutrition', retract it and republish with accurate information.

References

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