

ECN 275 – first lecture discussion (1) Environmental impacts from agriculture

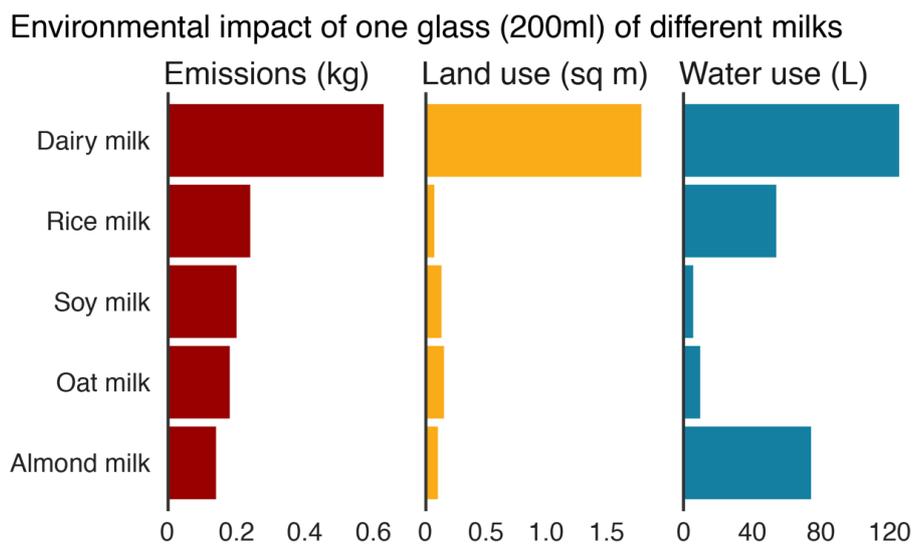
Purpose of discussion exercise – demonstrate the value and added insights of economic reasoning.

In a recent *Science* paper researchers compared the environmental impacts from cow milk and alternatives to milk produced from oats, soy, almonds, and rice. They have looked at how various ways of producing milk impact climate, land use, and water consumption.

The calculations are general, and impacts may vary between individual producers with a factor of up to 50 times for the same product. This implies there is considerable possibilities to reduce the negative environmental impacts from producers with the largest damages.

According to the researchers behind this paper, the most notable finding is that the animal based product, here cow milk, have larger adverse environmental impacts than the plant based milk substitutes. The conventionally produced milk generates almost three times as much climate gas emissions measured in CO₂-equivalents compared to the plant based milk. This finding also demonstrates the importance of dietary changes as the cow milk leads to higher emissions and adverse effects.

Cow milk also has the largest impacts on land and water use. A normal glass of cow milk (200 cl) requires 120 liters of water, while the almond based milk requires 74 liters of water, even that a considerable amount of water. In comparison, a 3 minutes long shower uses 36 liters of water.



Source: Poore & Nemecek (2018), *Science*

BBC

Questions for discussion

1. As an economist explain why the reported land and water uses for cow milk versus vegetable based milk are quite irrelevant. How would you modify the land and water use evaluation criteria used in this study to be economically more relevant?
2. The paper also suggests that dietary change could be an important driver for reduced environmental impacts. Using this example on milk production, what are the main obstacles for dietary change?
3. Generalize this to overall changes in food consumption habits. Why is your argument in (2) then less important?