

Interactive comment on “Nitrogen food-print: N use and N cascade from livestock systems in relation to pork, beef and milk supply to Paris” by P. Chatzimpiros and S. Barles

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The paper quantifies the nitrogen emissions to the environment due to the consumption of pork, beef and milk. Based on references used and acknowledgements this paper is part of a project focusing on environmental impacts of consumption in Paris. The calculations done in the paper and the assumptions made are in accordance with methodology used in this type of consumption based analysis. However, when reading the paper several questions emerge that are not answered in the text:

Does the assumed food pattern for Paris deviates from the average food pattern in France? As a consequence can we use the data calculated here also for Marseille or

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do we have to do the analysis again for every city in France?

The figures 1 and 2 provide information on production for Paris, if we study impact of another city do we get a different picture or is Brittany actually producing all the pork for France?

If the largest share of the milk/pork/beef comes from one region why not use the data from this particular regions/ livestock system instead of using a lot of assumptions for areas hardly contributing to the total?

Is there difference in N use efficiency in the various regions of France: so should we get the meat from somewhere else? Are these differences due to the climate or due to the different production system?

Are the nitrogen emissions in Brittany due to the consumption in Paris solely or do other cities also play a role?

The questions emerge because the paper is unbalanced. Just a few examples: The title mentions that it is about consumption in Paris; however, the results only mention per capita emissions. In the methodology section a lot of attention is paid to the spatial variability. It is mentioned that for all regions in France nitrogen balances of livestock production systems are made. However, results are only expressed as average data and there is no discussion on the observed spatial variability. Further the introduction is about nitrogen but half way the paper land requirements are mentioned and they emerge in the results and in the discussion, but it is not clear what they have to do the nitrogen question.

According table 2 it seems that it is assumed that the production systems in France are the same (all cows produce 18 liter of milk per day) and beef and swine grow at the same rate. In the actual situation this is not the case, in areas with intensive farming systems production values with respect to production and feed needs will deviate from results in extensive production systems. The assumption with respect to dairy pro-

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duction in France deviates from the present available data (up to 9000 liter per cow per year, while the paper mentions 4000- 6700 liter). So it seems that data from a low input system are used for milk, while for pork data from intensive farming systems are used. From research in this field is known that the environmental impact of low input system deviates considerably from the intensive farming systems. Since for milk data from a low input system are used and for pork a high input system it is not obvious that the results obtained are due to the different livestock types or due to different production techniques.

What is known from studies to environmental impacts of food is that large variation is calculated impacts exist. This has to do with the large differences in climate and production techniques that can be found over the globe. The exact determination of emissions related to a certain food product is of limited interest since for another production system results can be quite different. For scientists in this field information on how and why the calculated values deviate from the existing knowledge makes the paper of far larger interest than just presenting data. The authors do this in the discussion where they refer to data published by Jarvis. However, their way of addressing this is not neutral; phrases like: "results are underestimated and should be interpreted with caution" should be changed in the free from value observation that the choice for different system boundaries had large impacts on emissions calculated.

I think that authors should bring the paper in balance. Based on the material provided in the text this can be a paper on locating the environmental impact of consumption in Paris, but then the spatial variability should obtain more attention. And discussion whether environmental impact of consumption in other cities in France will deviate from this.

Or a paper focusing on the differences in nitrogen emissions between beef, pork and milk and the importance of the choice of the system boundaries. Including a discussion on the consequences for the choice of a certain production system (high input/low input), but in that case the consumption of Paris does not play a role, nor the spatial

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variation. Both options are scientifically interesting and worthwhile publishing.

Finally: Food-printing is not a clearly described scientific methodology, if auteurs want to use this term they have to introduce this.

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