

Report on LCA-critical review result

Project Reviewed: Draft report by Group-6

Reviewer: Group-14

Report date: 11-01-2017

1. Overall comments

- ❖ The draft report presents all major parts of LCA steps: Goal and Scope definition; LCIA; Impact assessment and Interpretation. It provides interesting background understanding for further detailed study on conventional and organic wines imported to Sweden from environmental point of view.
- ❖ The topic is interesting since it deals with production and supply of wine drink which is highly consumed in Sweden. It enables to improve the understanding about the difference between organic and conventional wine production and supply from environmental impact point of view. However, the title can be improved as ...**A comparative life cycle assessment of organic and conventional wine imported to Sweden.**
- ❖ The report structure and language use is good. But, improvement can be done in logical way of expressions and use of words/terms.
 - Example-1 *“Since the carton alternative for wine bottle has the least impact in all categories, it should be chosen as the material for the organic wine bottle”* (see conclusion section). Why do you recommend carton only for organic wine (why not for conventional wine too)?.
 - Example-2: *“the functional unit is then conceptualized to be a part of a box of 6 wines, scaleable in multiples of 6”*. This expression should be rephrased in clear sentence.
 - Example-3: *“In order to standardize the transport distance, both wineries were considered to be in Castel del Monte, Apulia, Italy and Hammarby Sjöstad, Stockholm, Sweden”*. If it is intended to describe the start and destination of transport segment, the sentence should be rephrased.

2. Transparency and completeness

Major parts of this LCA study have been documented. But the following points should be described more and stated clearly:

- What is/are the research questions in clear sentence/s?
- Description on sensitivity analysis (if it was omitted/considered) and how (based on what input parameters) it was designed (if used) or why it was omitted (if not used).
- Figures should be clear with usage of terms: Example in Figure 3: ‘transport’ indicates transporting what and from where to where? Similarly in Figure 4: is ‘transport’ process or material?

- How ‘plastic packaging’ and ‘carton packaging’ are considered? Commonly, wine is packed in plastics within cartons. In the report plastic package and carton package are two different packaging systems you considered (see figure 10). Be more transparent and if possible provide pictures describing plastic, carton, and bottle packaging system.

3. Methodology

The system is defined based on major assumption *“In order to standardize the transport distance, both wineries were considered to be in Castel del Monte, Apulia, Italy and (and destination at) Hammarby Sjöstad, Stockholm, Sweden. This assumption was made mainly because the focus of the study is to assess the impacts between an organically produced wine and a non-organic wine rather than impact differences depending on location and transportation”*. This is okay. But, your motivation was stated as *“The problem (the objective?) was defined in order to augment the availability of information for consumers to make informed choices about the environmental impact of their wine choices by comparing the life cycle of a conventional wine to a clearly labelled organic wine”* and this needs the actual supply flow chart indicating direct geographical origin with consideration of farm-to-winery transport distances and actual transport distance from Italy-to-Sweden, and Spain-to-Sweden. This issue is important since it affects the final result to be communicated to Swedish wine consumers. Therefore this point should be included in the recommendation part of report as recommended further study.

4. Clarity of results and conclusions

- ❖ The paragraph on page 14 -should be rephrased to be clear: ...”*Figure 7 shows that the impact results between the organic wines that are internationally and **locally distributed** have greater differences than between the organic and conventional wines (Figure 6), suggesting that the distribution and international sourcing of the product plays a larger role than the characteristics and environmental footprint of its constituents*”. Example what does it mean by ‘locally distributed’ in this paragraph?
- ❖ In some cases there are inconsistencies of numbers/results documented: example on page 11 transport is estimated to be 3.3345 tkm. In table 1, it is 212 kgkm. Why and how was this 212kgkm considered is not clear (if it was not used replace it with 3.3345tkm in table).
- ❖ Inconsistency of important term: example ‘bottle’, ‘container’, ‘packaging material’ are used interchangeably. It is good to avoid the word ‘container’ at all and use ‘glass bottle’, ‘carton package’ and ‘plastic package’ as required so that reader can understand easily.
- ❖ Inconsistency of expressions/conclusions: Example on page 19 (under discussion section) it is stated *“...since several assumptions have been made, which should reflect the reality of any*

given vineyard, it is the author's' opinions that this study can be viewed as a general take on conventional and organic wine production". This is very good expression that help readers to understand the scope (depth) of this study. However, on page 1 (under introduction section) "the report could and should be used as decision support for making environmentally sound decisions with respect to food industry and other commodities". Such strong recommendation is not consistent with the above expression about this study. Therefore, the second expression should be improved and be consistent with first expression.

- ❖ The comparison of three packaging scenarios (glass, plastic, and carton) is interesting. But in conclusion the results of this comparison are presented as result of sensitivity analysis. It is better to present it as comparison of different packaging system as it is based on variation of packaging material not input variable variation (Note also that it was not explained in methodology if sensitivity analysis was done and how it was designed).
- ❖ In general the conclusions are supported by the results and answer the major questions to be addressed as set under objectives. However, the conclusion and recommendation part can be expanded to summarize major results and major recommendation (as indicated in this critical review)

5. Suggest improvements (in addition to what explained above):

- ❖ The functional unit can be stated as –functional unit is a glass bottle of wine containing 750ml with gross weight of 1.3kg.
- ❖ The way word ‘distribution’ is used needs more clarification. In this case...distribution refers to transport from wineries to destination in Stockholm (Depot). Make clear that this transport excludes the distribution from Depot to different systembolaget shopping within Sweden. After all, it is better to replace the term ‘Distribution’ with ‘Transportation’.
- ❖ Clarification is required for ‘transport’ under vinification.
- ❖ To assess the hot spot stage along the chain, the impacts should be computed and presented (this part is missing in report) comparing the viticulture, vinification, bottling, and transport stage. This also provides chance to understand how the organic and conventional methods differ at **viticulture** stage. This is important since bottling and transport stages are the same for organic and conventional cases.
- ❖ The following point can be added as part of recommendation.
Similar LCA study can be recommended:
 - (i) considering the actual winery location in Spain and Italy (separately),
 - (ii) considering distribution from Depot (in Stockholm) to systembolaget shops (with average distribution distance)