Differences in Lifecycle Oriented Tools to Evaluate Packaging: A Case Study

Study Background

- Five tools commonly used for packaging assessment were evaluated
  - Compass (from Sustainable Packaging Coalition)
  - GaBi (PE International)
  - SimaPro (PRé)
  - Sustainable Minds
  - Walmart Packaging Scorecard

Results: Insights into Sustainability Practices

- Lightweighting consistently led to greatest improvements.
- Energy is often the most important contributor, but most software does not allow users to consider alternative energy.
- Focusing on the primary packaging alone obscured relevant data about the system.
- Where the impacts of materials can be negative for biomass credits, the relative importance of transportation increases.
- Local sourcing was not always better, due to differences in the impacts of the various modes of transportation.
- Most tools are limited in evaluating the whole system of reuse (e.g. washing process for glass bottles).
- Recycled material resulted in small improvements in impacts, but an increase in weight countered these improvements.
- Bulk selling units may have more overall packaging.

Findings: Results Vary between the Tools

- Each tool treats various materials in different ways
  - Weight matters
  - Biogenic credit assumption changes results
  - End-of-Life (EoL) values vary greatly

Findings: Single Score Rankings Differ in Tools

- Sustainable Minds rank based on end of life treatment for materials.
- SimaPro and Walmart rank determined by amount of material, but type of material is important for packaging systems close in weight.

Conclusions

- Limited or poor quality data leads to deficient results.
- Resources needed to accurately carry out assessments.
- Tool trainings are recommended to minimize errors.
- Users should select the tool that best suits their needs.
- Tradeoff between ease and accuracy.
- Tools for a quick estimate of the different options (i.e. Compass and Sustainable Minds) make evaluations easier for the user by incorporating several assumptions.
- Tools for full scale assessments, or substantiating marketing claims, differentiate between the nuanced complexities of different packaging systems. However, more time is needed to collect all relevant data and learning how to use the tool.
- Each of the tools also adopts its own inherent assumptions about:
  - composite materials,
  - end of life treatment of materials, and
  - biogenic resource use and emissions.