

KEY
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Roundtable
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Social Metrics

Product Social Impact Assessment

Social impact of meat
extended shelf life solutions

Corbion learning journey

Corbion learning journey

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This case-study was executed as part of the work with the Product Social Metrics Roundtable. This report contains a public summary of the work done.

About Roundtable for Product Social Metrics

The Roundtable is a joined initiative of the following companies. More information can be found on www.product-social-impact-assessment.com

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1 Introduction Goal and scope

This case study is a summary from a more detailed internal confidential report. It follows all the stages described in the Product Social Impact Assessment (PSIA) Handbook e.g., Materiality, Goal and scope, Hotspot assessment and the full PSIA.

1.1 Product description

Corbion's meat safety solutions offer protection against *Listeria* growth and extended shelf life. In this case study, we analysed two products, *Opti.Form Ace P37* and *Verdad N15*. Both have similar functionality in terms of safety and shelf life but address different markets.

Opti.Form Ace P37 belongs to Corbion's *Opti.Form* portfolio which includes industry standard products used for *Listeria* control. *Opti.Form Ace P37* is a liquid blend of potassium lactate, potassium acetate, and sodium diacetate. The effective combination of lactate, acetate and diacetate is a proven inhibitor for *Listeria* growth, extending the shelf life of meat. *Opti.Form Ace P37* is designed to provide protection against *Listeria* growth at a reduced cost. *Opti.Form Ace P37* is recommended for use in a variety of cured meat items.

Verdad N15 is the most effective antimicrobial against *Listeria monocytogenes*. It is best suited for cured meats and allows for consumer-friendly labelling. *Verdad N15* can be listed as "cultured corn sugar and vinegar" on the label of a finished product. The usage of *Verdad N15* reduces the impact on sodium levels in a product as compared to the *Opti.Form* product line.

Both products are applied by manufacturers of cooked meat products in the USA.

1.2 Goal

The main reason we performed this case-study was to gain knowledge and practical experience applying the Product Social Metrics (PSM) methodology and using relevant data collection tools. This study contributes towards the implementation of the Corbion's 2030 target of quantifying impacts on people and planet for products with a sustainability value proposition.

We have identified three applications of the Product Social Impact Assessment (PSIA) that may be of potential value to Corbion:

1. Internal assessment of value chain (identify hotspots)
2. Internal assessment of product portfolio (focus on hotspots)
3. Provide evidence to positive marketing claims (Communication results in B2B context)

1.3 Scope description

The scope of the PSIA covered the supply chain, manufacturing, and use of *Opti.Form Ace P37* and *Verdad N15*, as shown in Figure 1. These products are manufactured at Corbion Blair in the USA. The assessment covers two stakeholder groups, workers and users.

The supply chain scope includes Tier 1 and 2+ suppliers from the chemical and agro-food sector. Since both products are used as food ingredients in the B2B segment, two different types of users are considered: Corbion customers and meat consumers. In this case, Corbion's customers are meat processing companies and they are also the direct users of these products. The meat consumers are considered end-users. Meat production is not included in the scope.

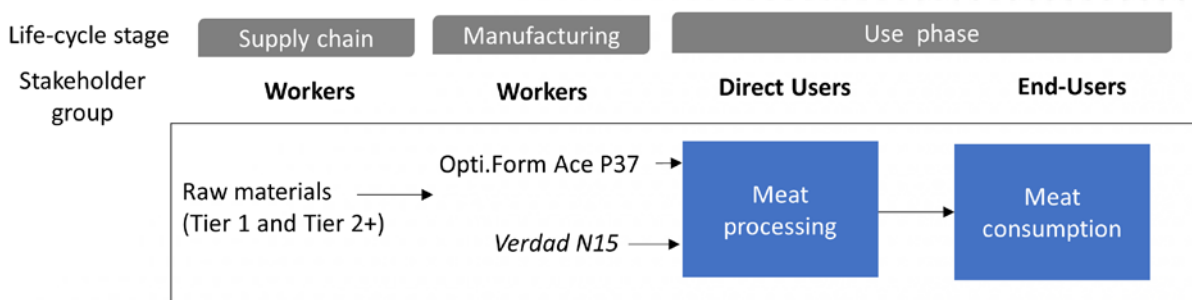


Figure 1: System boundaries and stakeholder groups.

2 Selection of Material Topics

The relevant social topics analysed in this PSIA study were derived from Corbion’s materiality matrix which is used to set priorities for Corbion’s sustainability strategy. The materiality matrix visualizes the relevant social, environmental, governance, and economic issues as a function of their importance to stakeholders (vertical axis) and Corbion’s strategy (horizontal axis). The materiality matrix was generated in 2017 using an in-depth methodology (as explained in the next section) and resulted in the identification of nine material themes. Figure 2 shows the upper-right section of Corbion’s materiality matrix, highlighting the nine material themes which have a high impact on our strategy and are considered important by the majority of our stakeholders. From these nine themes, five can be linked to social topics from the PSIA Handbook.

Material theme	Definition	Stakeholder group PSIA	Social topic PSIA
Safe affordable and healthy food	Contribution of Corbion’s food ingredients to safe, affordable, and healthy food and to the prevention of food waste.	Users	Health and inclusiveness
Product quality and performance	Deliver products that consistently meet specifications and deliver the expected performance.	Users	Product safety Responsible communications
Transparency	Transparency on raw material sourcing, product environmental impact, sustainability performance, and clear labelling of food ingredients.	Users	Responsible communications
Sustainable supply chain	Responsible sourcing of raw materials, taking into account business ethics, human rights, labour conditions, the environment, agricultural practices, land rights, land use, and biodiversity. Corbion’s supplier code describes the relevant topics in more detail.	Workers	Health and safety, Remuneration, Child labour, Forced labour, Discrimination, Freedom of association and collective bargaining.
Occupational health and safety	Provide a safe and healthy working environment for all employees, contractors, and visitors.	Workers	Health and safety

Table 1: Material themes linked to the social topics of the PSIA Handbook

The materiality determination process

1. Long and short list of themes: we have compiled a long list of relevant sustainability themes based on GRI indicators, benchmarking, and stakeholder input. This list was consolidated into a short list of 28 themes.
2. Determining importance to the Corbion strategy: the importance of each theme to the Corbion strategy was determined through discussions with the Executive Committee.
3. Stakeholder dialogue: the importance of each theme to our stakeholders was determined on the basis of a stakeholder survey and interviews.
4. Stakeholder weighting: the stakeholder input was weighted according to the impact that Corbion has on each stakeholder group and the impact that each stakeholder group has on Corbion.
5. Calculating materiality matrix: the resulting internal and external scores were plotted in a matrix and discussed with the Executive Committee to select the material themes

Key stakeholder groups

Our key stakeholders have been identified on the basis of two questions:

1. On which stakeholders does Corbion have a significant impact?
2. Which stakeholders have a significant impact on Corbion?

(Alphabetical order)

- Business partners • Multi-stakeholder initiatives • Customers • NGOs • Employees • Potential future employees • Governments • Shareholders • Industry associations • Supervisory Board • Knowledge institutes • Suppliers

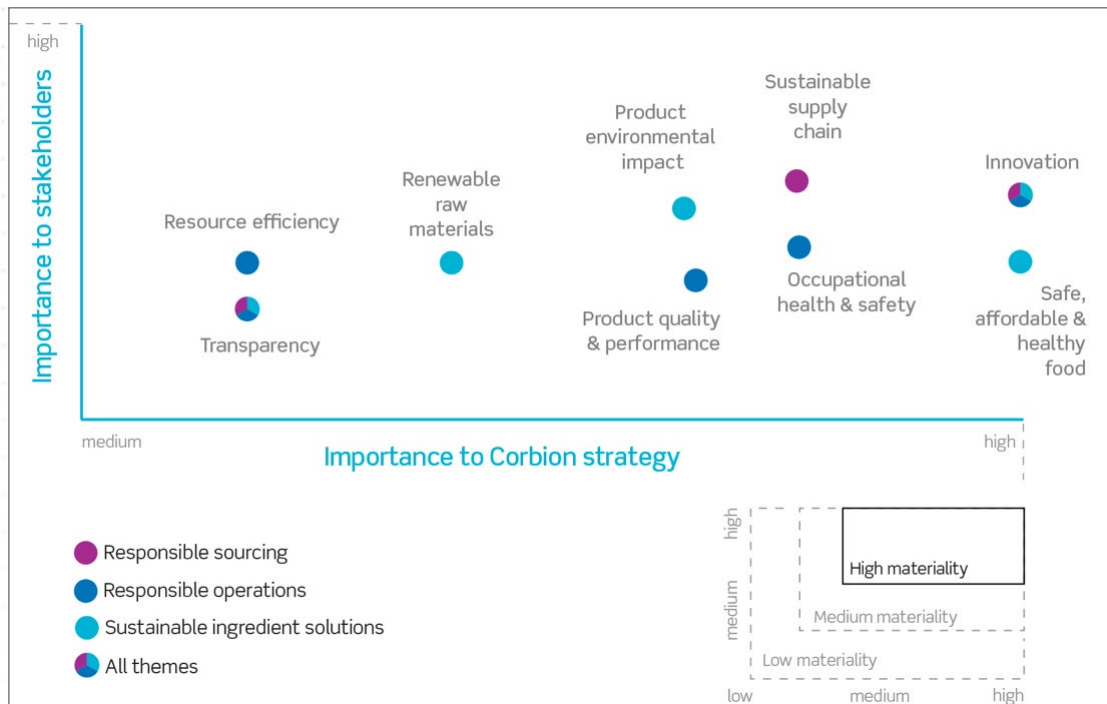


Figure 2: Corbion's materiality matrix, 2017

3 Hotspot Identification

Corbion is in the early phase of implementing the PSIA methodology. Therefore, an important objective for this case study was to gain experience on effective data collection tools and understand the suitability of the different data sources specific to our case and objectives. The hotspot analysis was done exclusively with secondary data sources while primary data was used for the scoring.

3.1 Data tools for Hotspot identification

As suggested in Chapter 5 of the Handbook, secondary data sources were explored for the hotspot analysis of the workers stakeholder group. These sources included desk research, RepRisk ESG platform¹ and SHDB v4 (social hotspots database²).

3.1.1 Desk Research

Desk research was used to identify hotspots in US farming and food production industries with a focus on workers. Data was pulled from a variety of sources including local and national news, government reports and databases, NGO reports, and Think Tanks. Overall, desk research is a useful approach for identifying the main issues in each of the social topics outlined in the Handbook. This approach, however, does have some challenges:

- Gathering and reviewing the data is time consuming
- It is difficult to determine how much data is “enough” to make sure the findings are valid
- Data quality may be lacking
- Depending on the source, finding positive evidence can be difficult to determine

Despite these disadvantages, in our view, desk research is useful in combination with other data tools, to corroborate certain findings.

3.1.2 RepRisk

RepRisk identifies financial and reputational risks in a company or sector. One of the main advantages is RepRisk’s large database. It features a vast number of companies from around the world. As such, with RepRisk the preference was to use supplier specific data. When supplier specific data was not available, country (US)-sector data was used. In addition, most of the social topics included in the tool match the topics in the Social Metrics Handbook making it relatively easy to search for hotspots. The strength of RepRisk is also a disadvantage. Since RepRisk focuses on determining risk, one cannot determine positive evidence as the news articles linked to a company or sector only show negative incidents. In order to identify positive evidences, other data tools are required.

3.1.3 Social Hotspot Data Base (SHDB) version 4

SHDB is an extended input-output database based on the LCA approach. Compared to other tools it is able to cover the full upstream value chain and data is easily available allowing for quick calculations for screening studies. One of the main disadvantages is that data is only available at the country. Additionally, understanding the scores and the contribution of the different supply chain players was sometimes a challenge. Some of the findings were corroborated by the results of the desk research.

3.1.4 Experiences

Our experience shows that RepRisk and SHDB can be very useful for a quick hotspot analysis but need to be complemented with primary data or by desk research. The main difference between the two tools is the interpretation of findings. RepRisk methodology provides guidance on risk level with the peak RRI (RepRisk Index), while for SHDB the hotspot threshold level must be defined by the user.

¹ <https://www.reprisk.com/>

² <https://www.socialhotspot.org/>

3.2 Results from the Hotspot Identification

The hotspot identification aimed to identify social risks in the product value chain. We identified high risk topics and high risk suppliers (or country-sectors) using all three of the data tools described above. Table 2 shows that the identified risk areas are dependent on the data source. The social topic child labour seems to have low risk, regardless of the tool.

Social topic	SHDB	RepRisk	Desk research
Health and safety	Chemical sector (Highest risk)	Country-sector for mining and food (agriculture)	Higher risk for Agri-food sector
Remuneration	Chemical sector	-	Agri-food sector
Child labour	-	-	-
Forced labour	All sectors	Country-sector for mining and food (agriculture)	Agri-food sector*
Discrimination	-	Country-sector for food (agriculture)	Agri-food sector*
Freedom of association and collective bargaining	Chemical sector	-	Agri-food sector**

Table 2: Main findings of the hotspot identification, using different tools.

* In the US, discrimination is mostly related to race/ethnicity and/or immigration status. In relation to forced labour, labour trafficking and forced migrant labour were the main issues. (American Public Health Association, 2017; Owens et al., 2014; Verité, 2010)

** The US does not have “sectoral bargaining” like countries in Europe (Compa, 2014; Fick, 2013)

Hotspot identification was used to give direction for the data needed to conduct the scoring in the full PSIA assessment.

4 Full PSIA assessment

As described in the Handbook, in the next step a full PSIA assessment is performed for the supply chain actors or user topics identified in the Hotspot identification. In the full PSIA assessment, the 5-point scale and performance indicators are applied.

4.1 Primary data for full assessment using the 5 point scales

Primary data collection focused on using data sources readily available at Corbion. We did not rely on specific supplier or customer questionnaires. For workers the main data sources used were SEDEX SMETA (SEDEX Members Ethical Trade Audit) reports³. Additional data sources consulted included several company reports & documents. Obtaining primary data for Tier 2 or Tier 3 suppliers was more challenging as it requires in depth knowledge of the value chain.

For the users, such databases could not be retrieved and the data collection approach relied on internal questionnaires and interviews with business development, marketing and communications, who provided supporting documentation for the scoring.

4.1.1 SEDEX SMETA Audits

Sedex is a global membership organization used by more than 50,000 members in over 150 countries, enabling buyers and suppliers to bring together many kinds of data, methodologies and standards about their supply chain. SEDEX is a platform that allows questionnaire and audit sharing between suppliers and their customers. Corbion uses this data to analyse supplier performance. As a SEDEX member, SMETA reports of other members are easily accessible to Corbion and are extremely helpful when it comes to scoring Tier 1 suppliers. SMETA reports are specific to each manufacturing site and the data is validated through an audit process. In addition to identifying non-compliances, the reports also identify positive actions. If a site is doing something particularly well, the auditor can highlight the action as a “good example”. Good examples make it easier to identify positive evidence for the PSIA scoring. Additionally, the data included in the SMETA corresponds to each of the social topics outlined in the Handbook thus scoring becomes relatively easy and quick. SEDEX also provides the opportunity to connect to Tier 2 or Tier 3 suppliers but this is often a challenge, because either they are not known or are not in SEDEX. In order to be able to use the SMETA report the supplier companies must be a member, complete the questionnaire and perform a regular audit. In certain cases we found contradictory evidences from auditors that made interpretation subjective.

4.1.2 Company Reports & Documents

Where SMETA audits were not available, we used company documents and reports to complete the PSIA scoring. Examples of these types of documents include code of conducts, annual reports, sustainability or ESG reports, and investor relations webpages. These documents provided a detailed comprehensive overview of the company, however, the data was not always specific to a site or business area. It is also difficult to identify non-compliances or crosschecks and validate the data included in these reports. Reviewing company documents is time consuming and the documents may not contain the necessary information to match the performance indicators in the Handbook.

³ <https://www.sedexglobal.com/>

4.2 Experiences and results for workers

For the PSIA, regardless of the results in Table 2, all relevant topics and value chain actors were scored using the Handbook’s five-point scale. This was done to validate whether the hotspot assessment succeeds in identifying all relevant social areas. The main conclusions were:

- √ Scoring of workers from supply chain showed that most areas score compliance or progress beyond compliance, despite the findings in the hotspot analysis.
- √ High risk in Health and Safety identified by SHDB is not supported with the scoring results/more detailed company specific analysis. Actually the primary data showed the score can even be positive for some suppliers. This example confirmed the importance of checking issues flagged during the hotspot analysis.
- √ Based on the hotspot analysis the scoring could have been simplified by eliminating the need for primary data collection for three suppliers and the social topic child labour.

At this phase the PSIA has some important limitations such as the lack of primary data related with some Tier 1 suppliers and Tier 2+ suppliers. While these data gaps could be filled in with secondary data the main challenge relied on the conversion of the different risk definitions from the data tools to the five-point scale of the Handbook. Consistency in scoring could be improved with additional examples on acceptable evidences for the performance indicators.

4.3 Experiences and results for users

Application of the PSIA for the users was performed to substantiate the social benefits of using the meat safety ingredients Verdad N15 and *Opti.Form Ace 37*. These two products are ingredients used in the B2B segment, therefore two types of users were distinguished in the scoping phase: direct users and end-users.

The normal use of these products does not have an impact on the health of the direct users and the products comply with legal requirements (score 0). However, Verdad N15 contributes to consumers health because it is low in sodium compared to a standard industry product (*Opti.Form PD4*), as shown in Figure 3. In addition, Verdad N15 enables sodium reduction in meat applications without compromising on taste, as shown in Figure 4. For this reason we score *Opti.Form Ace 37* at compliance level (0) and Verdad N15 progress beyond compliance (+1).

Corbion **Nutritional Data US**
Rev.No. 1/4503
Print date 07-Mar-2019

Nutritional information* per 100 gram product		
Verdad® N15		
Calories	(kcal)	143
	(kJ)	596
Calories from fat	(kcal)	0
Protein	(g)	0.2
Sodium	(mg)	55
Nutritional information* per 100 gram product		
Opti.Form® PD 4		
Calories	(kcal)	154
	(kJ)	644
Calories from fat	(kcal)	0
Protein	(g)	0
Sodium	(mg)	700

Figure 3: Nutritional information of Verdad N15 and *Opti.Form PD 4*.

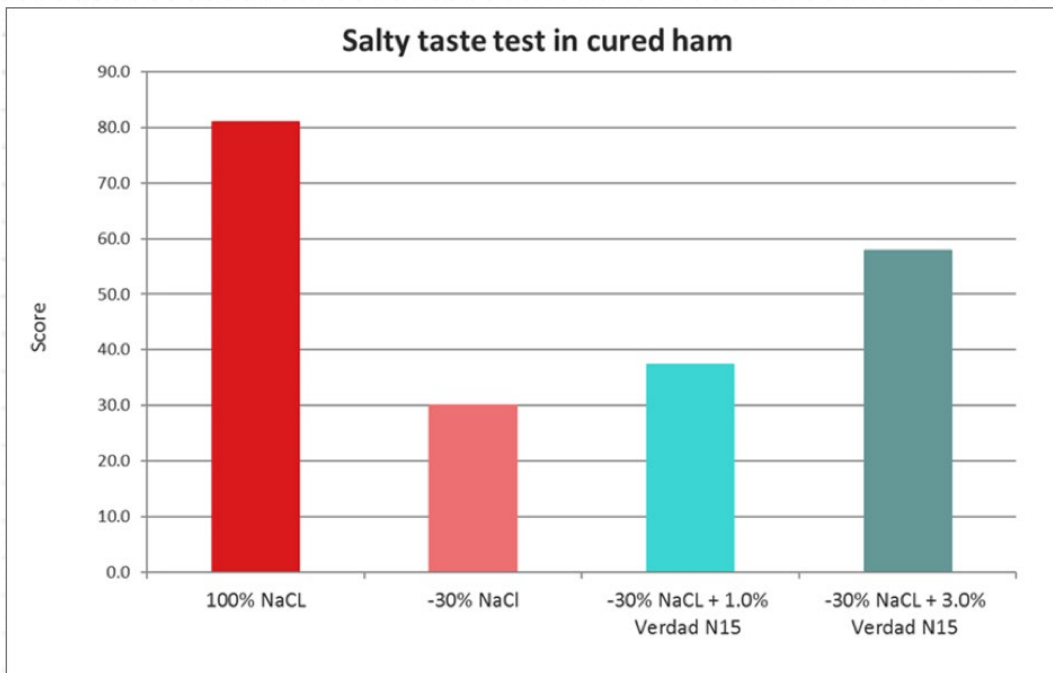


Figure 4: Sensory test from Corbion Innovation Center, to test salty taste in sodium reduced cooked cured ham.

Both products conform with the requirements in terms of food safety and are designed for performance against *Listeria*, ensuring food safety (Figure 5 and Figure 6). Safety for direct users is demonstrated in safety data sheets/GRAS. Corbion has programs to disseminate and raise awareness on *Listeria* control. This information is publicly available on the website but it is not specifically targeted at endusers. Based on this information, the use of our products *Opti.Form Ace 37* and *Verdad N15* score beyond compliance (+1) in terms of safety for both user groups, justified by the performance of the products against *Listeria* to guarantee food safety.

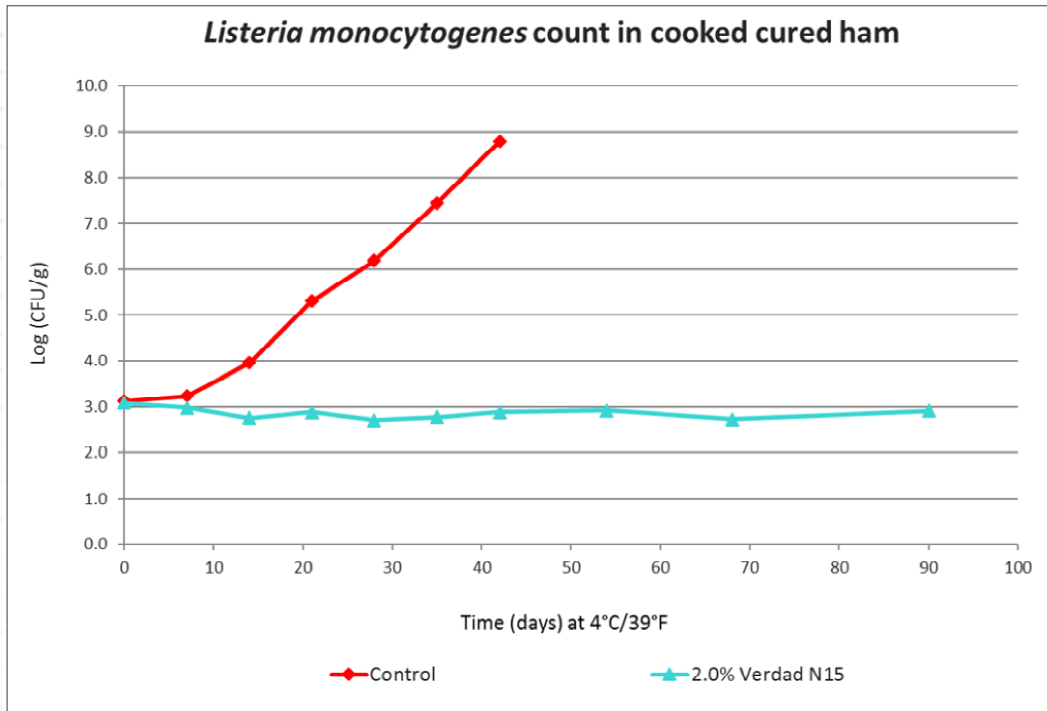


Figure 5: Inhibition study of *Listeria monocytogenes* with 2% Verdad N15.

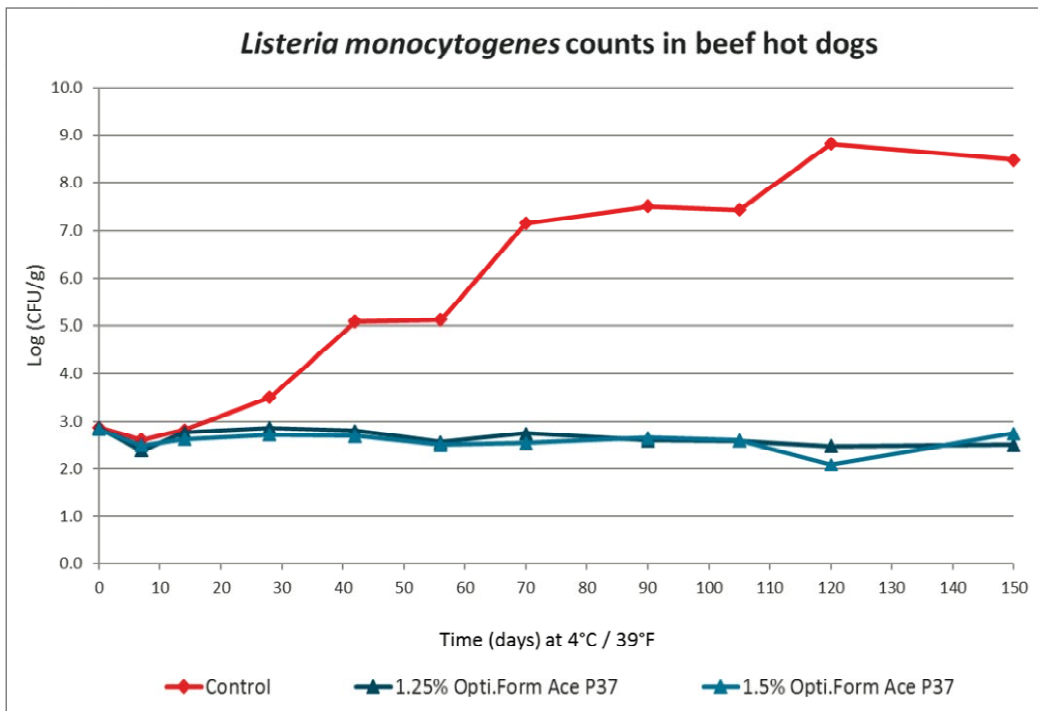


Figure 6: Inhibition study of *Listeria monocytogenes* with Opti.Form Ace P37.

During the PSIA we recognized that the social topics inclusiveness and responsible communication are difficult to score in B2B and may be more relevant in a B2C context. For example, *Opti.Form Ace P37* is the low cost in use product, enabler of safe meat products at lower cost, which can be a way to provide nutrition to vulnerable groups. However, we need more information from our customers to be able to make such claim.

5 Learnings from the case study

Through this case study we gained a better understanding of the value of PSM as a methodology to quantify the social impacts of Corbion products.

The combination of the different data collection tools was successfully used to identify the social risks of workers in the value chain. Both of the supply chains used in the study, however, were very similar which resulted in very small differences in the results of the PSIA. Differentiation between products should become more evident when comparing value chains from different geographic regions. On the other hand, for future cases this means that the assessment of the value chain can be re-used in future studies, reducing the effort required in terms of data collection and interpretation.

The PSIA provides a structured approach to identify the social impacts of a product on users. However, for a company like Corbion that deals mostly in the B2B segment, the Performance Indicators (PIs) for users were hard to apply. For example, Corbion promotes the health and safety benefits of our products but our communication/marketing programs are directed to our customers who do not directly benefit from the improved health and safety. So, even though we have awareness programs they are not directed to the end consumer.

In terms of further developing the PSM methodology, we recommend that more examples of some of the PIs for both workers and users are provided. We also recommend additional material on what type of evidence is acceptable for some of the PIs for both stakeholder groups. More examples could help narrow down the type of data/evidence we would need to collect, increasing consistency in the assessments.

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