

# Project *brief*

Thünen Institute of Market Analysis

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## Food loss in European fruit and vegetable supply chains: The impact of retailers' product standards

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- A survey was carried out of suppliers as well as some growers in the Lidl supply chain of fruits and vegetables in order to assess the influence of product requirements on food loss.
- On average, 15 % of produce do not comply with the product requirements of the retailing company Lidl. Much of this is marketed alternatively.
- Around 6 % of fruits and vegetables in the Lidl upstream supply chain become food loss (non-harvest, animal feed, disposal, non-food items).
- Pesticide residue limits and calibre requirements are the most relevant product standards with regard to food loss.

### Background and aim

The way we feed ourselves is the single largest cause for the overuse of the world's biocapacity. Yet, an estimated 30 % of the food produced globally is lost or wasted.

Retailers' specific quality requirements are an important cause of food loss, particularly in the fruit and vegetable segment. Here, product specifications often go beyond legal requirements. They comprise visual traits, pesticide residue limits, and packaging requirements. The exact standards as well as the amount of food loss caused by these private standards have not yet been identified. In addition, relatively little is known about the impact of specific business practices on food loss.

Therefore, on behalf of the Lidl Stiftung, this study seeks to answer the following questions:

- Which Lidl requirements and business practices play a role with regard to food loss in the upstream fruit and vegetable supply chain?
- What happens to produce that does not meet the requirements?
- How can Lidl product standards and business practices be amended in order to reduce the amount of food loss they induce?

### Methodology

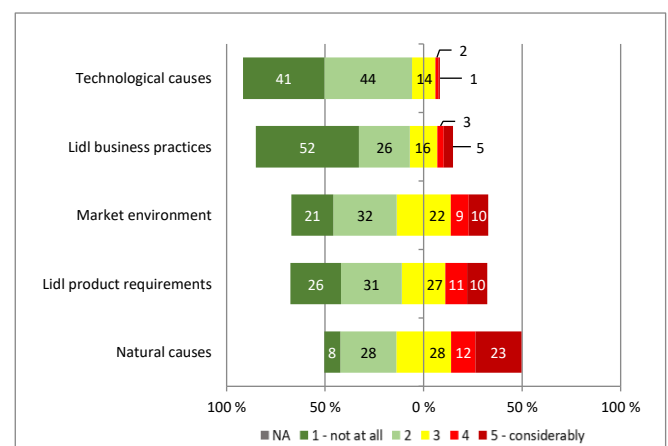
Methodologically, the project was divided into two parts: At first, qualitative interviews were conducted with relevant actors in the Lidl supply chain, followed by data collection via an online questionnaire. This survey of suppliers (103 producing suppliers, 81 producer associations, 31 private traders) covered 12 fruit and vegetable crops in Germany, Italy, and Spain and was the core of the project. A total of 215 suppliers took part in the online survey. The response rate was 30 %. However, it is

not known how well the respondents represent the sample population, for example in terms of sizes, quantities and crops. Within the study, fruit and vegetable items that had been produced for human consumption but were eventually not harvested, were used as animal feed, were disposed of, or processed into non-food items due to Lidl product specifications were categorised as food loss.

### Key findings

The online survey revealed that 14.7 % of the produce grown or traded does not meet the retailer's requirements. After natural causes, Lidl's specific product requirements are regarded as the second most important reason for food loss by suppliers.

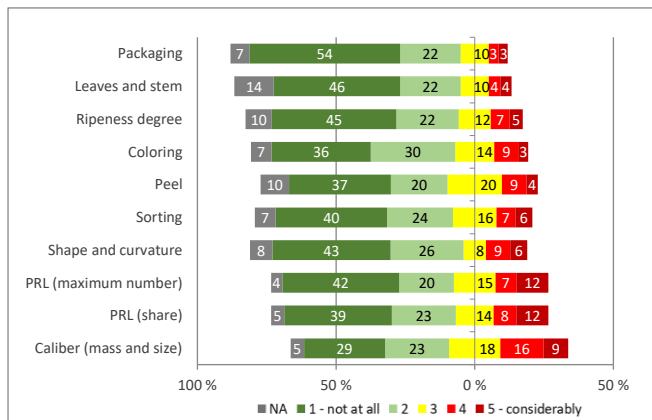
### Suppliers' assessment to what extent the following superordinate causes lead to food loss



Source: authors

Calibre requirements (mass and size), as well as pesticide residue limits were named as the requirements that most frequently lead to food loss, especially in the case of mandarins, carrots, tomatoes and bell peppers.

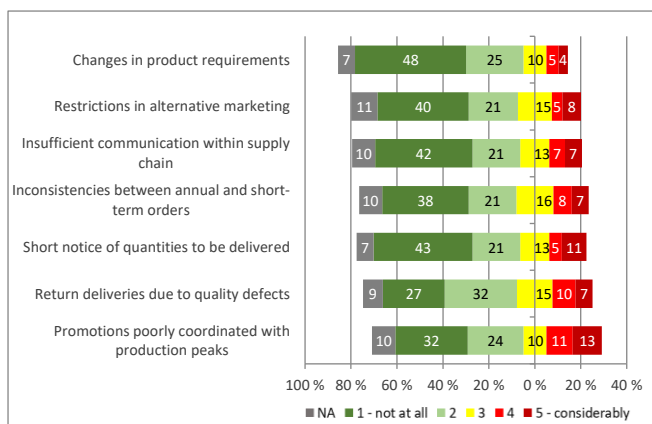
**Suppliers' assessment to which extent specific product requirements lead to food loss**



Source: authors

Compared to product requirements, Lidl business practices were generally rated as a less significant cause of losses. The respondents named the inappropriate timing of promotions and rejections of products as comparatively relevant. 24 % and 17 % of the participants respectively stated that these practices have a (very) strong influence on the occurrence of food loss.

**Suppliers' assessment to which extent specific business practices lead to food loss**

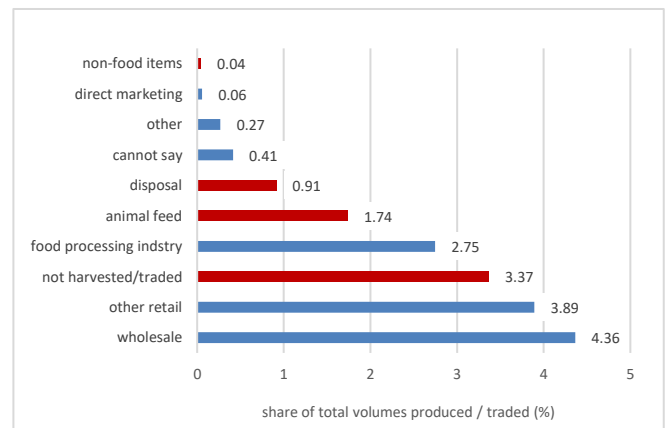


Source: authors

Almost two thirds of produce that is being rejected due to Lidl specifications is marketed elsewhere, mainly into wholesale and other retail. However, 6 % of fruits and vegetables (0.06 % processed to non-food items, 0.91 % disposed, 1.74 % animal

feed and 3.37 % not harvested/purchased) in the Lidl supply chain become food loss.

**Marketing and disposal channels for rejected produce (red bars= food loss)**



Source: authors

**Recommendations to Lidl**

The results of this study suggest the following recommendations as to how Lidl could amend product requirements and business practices in order to reduce the emergence of food loss:

- Improve flexibility and tolerance with regard to specific product requirements (calibre, pesticides), especially for mandarins, carrots, tomatoes and bell pepper
- Enrol a loss-monitoring programme throughout the supply chains
- Review packaging and sorting requirements
- Improve volume planning and promotions
- Actively promote alternative marketing channels

**Limitations**

It should be noted that in questionnaire surveys the actual incidence of food losses is often, intentionally or unintentionally, being underestimated compared to actual on-site measurements. This is especially true for studies that try to assess losses at the level of primary production.

In addition, statements on the effect of product requirements on the amount of food loss of certain crops could only be derived to a limited extent, as the response rates for some crops were rather low.

The forwarding of the questionnaires was the responsibility of the agencies due to their contacts with the suppliers and could not be controlled by the authors.

The present study moreover mainly focuses on suppliers. Upstream producers, as another relevant source of loss, could not be adequately considered.

**Further Information**

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