

Costs and Effectiveness of Food Waste Prevention and Reduction Strategies



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Overview

- Extent of food waste in Denmark
- Economics of food waste prevention and reduction
- Analytical approach
- Some preliminary results
- A few issues for discussion

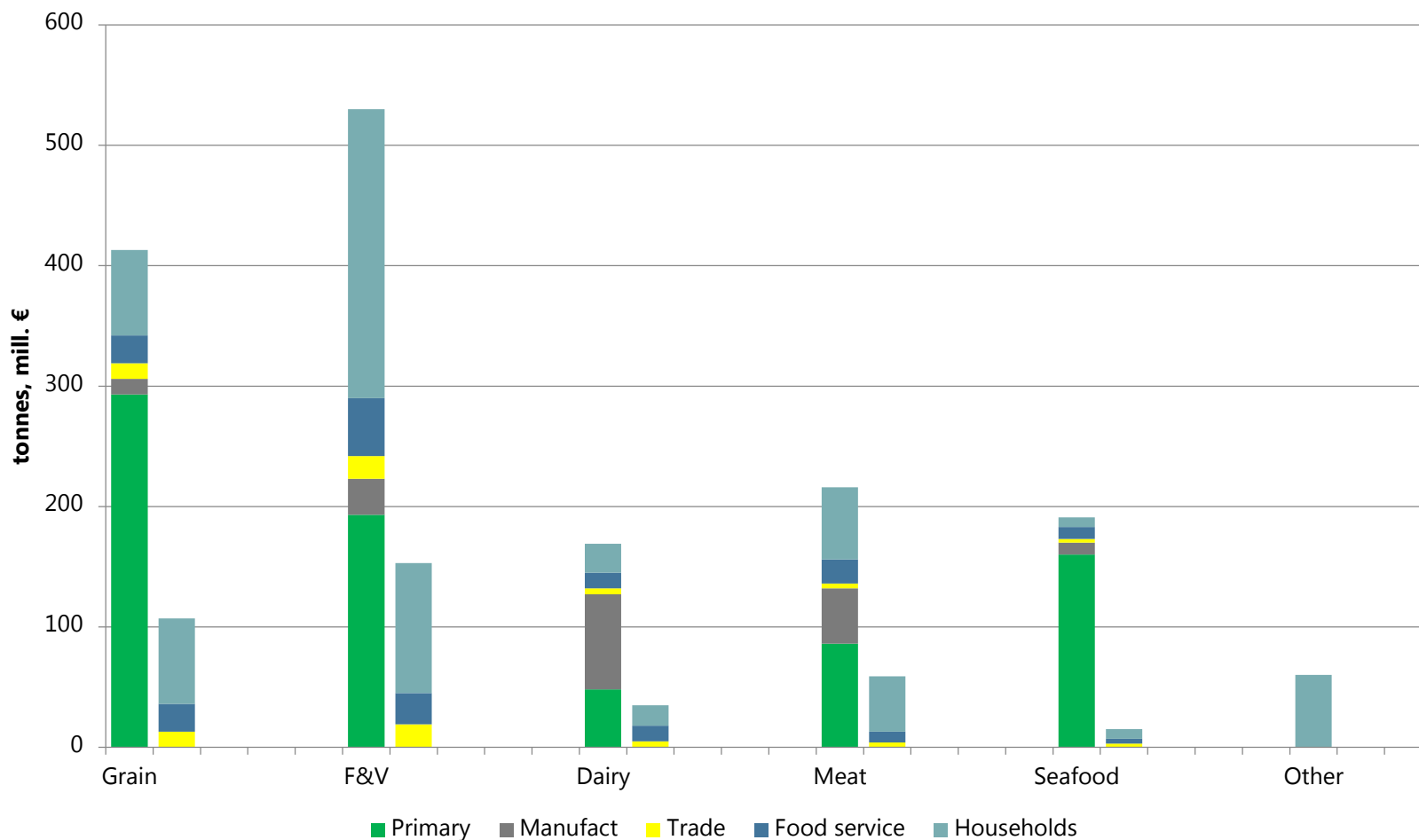
Extent of food waste in Denmark

Extent of food waste

Teuber & Jensen (2016) Food losses and food waste: Extent, underlying drivers and impact assessment of prevention approaches

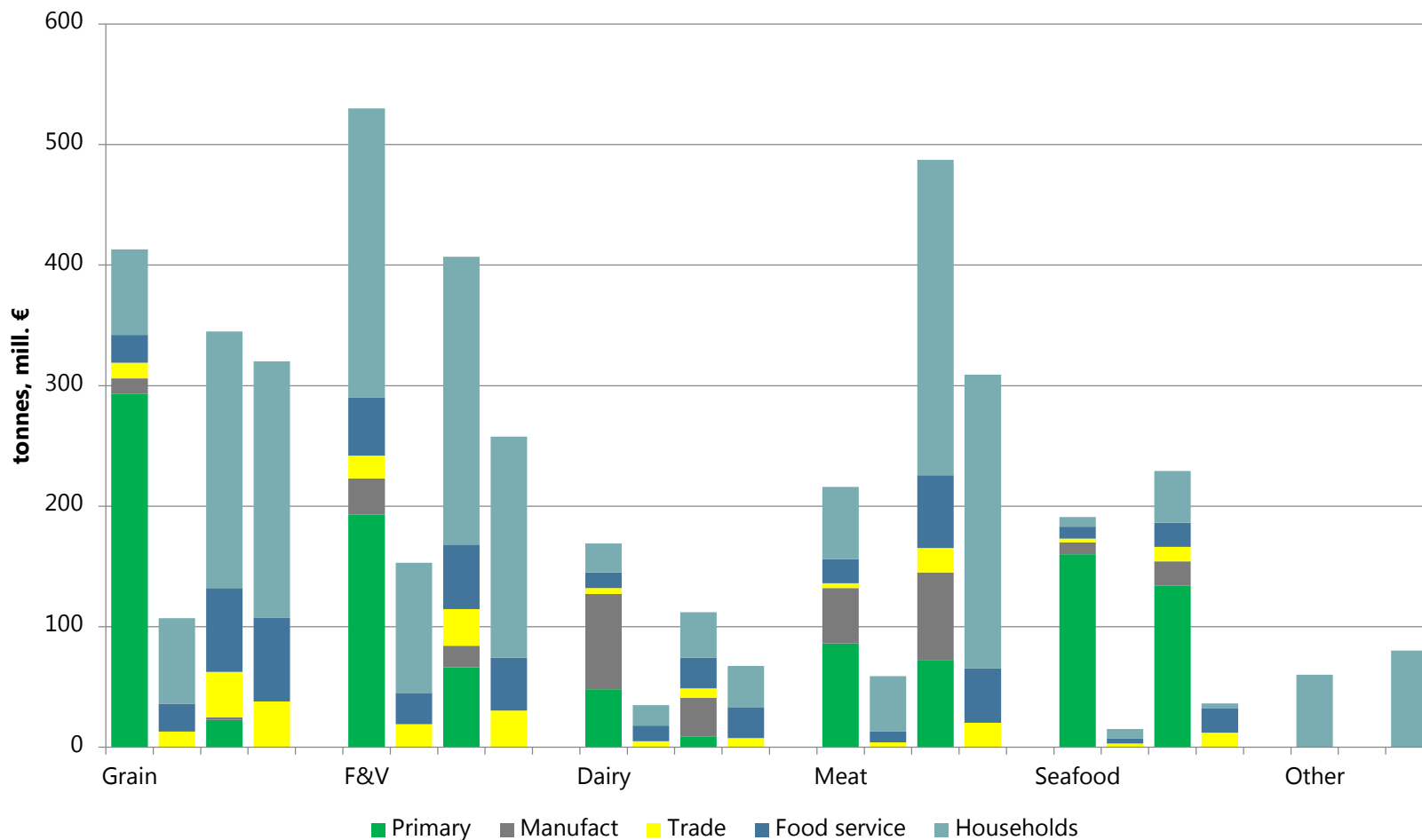
- Data sources:
 - Data from study of household waste from Danish EPA
 - Data from study of waste from retail, wholesale and food service
 - Data from facilities receiving industrial waste
 - Literature-based estimates of food loss from agriculture and fisheries
- Compilation of the different data sources
- Estimation of product value at different stages of the supply chain
- Combining quantity and value data to economically assess the extent of food waste in Denmark

Estimated food waste in Denmark



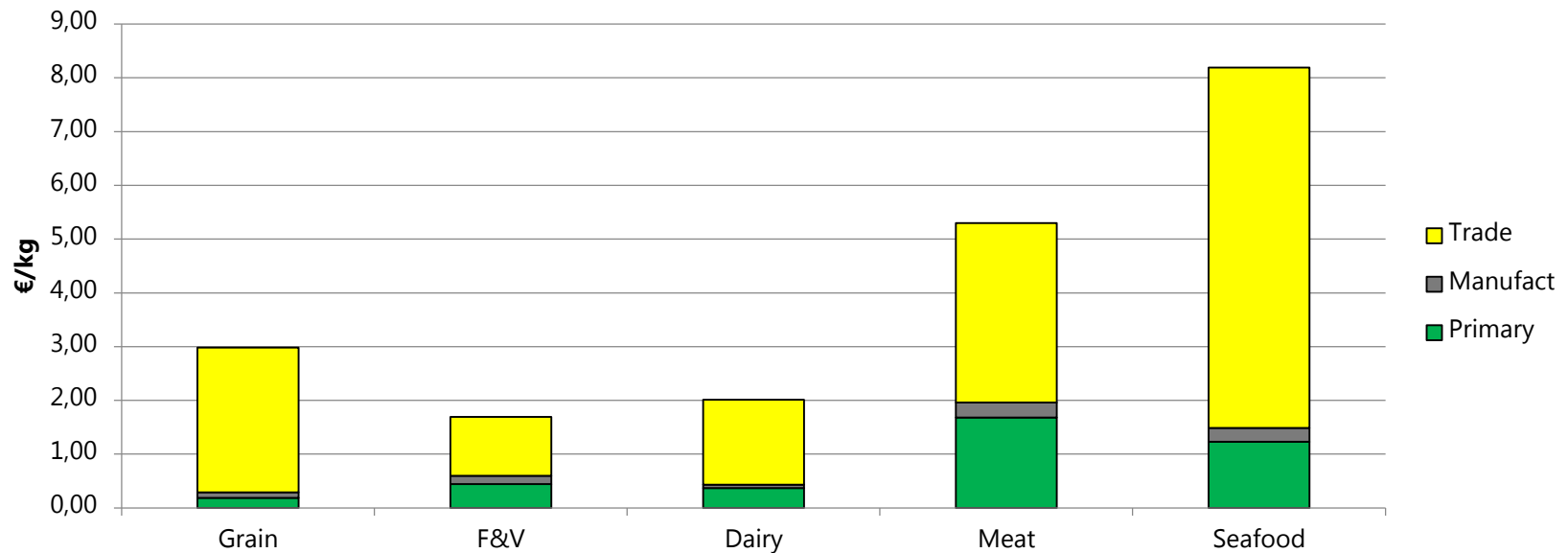
Source: Teuber & Jensen (2016)

Estimated food waste in Denmark



Source: Teuber & Jensen (2016)

Value of food along the supply chain



Source: Teuber & Jensen (2016)

- Value reflects input of resources entered into the production, processing, transportation, cooling, etc.
- Some correlation with impacts on environment, climate etc.

Economics of food waste prevention and reduction

Trade-offs between costs of food waste and costs of preventing food waste

Initiatives to reduce food waste may imply additional costs in terms of ...

- Extra input of resources (personnel, energy, packaging, etc.) to prevent waste
- Lower value of “marginal products” that are otherwise wasted
- Extra supply leads to downward spill-over on commodity prices
- Extra efforts in information, campaigning, data collection, administration...
- Restrictions on consumer choice
- ...

We try to estimate some of these costs

Food waste prevention measures

Food production

- Quality standards (imperfect produce)
- Secondary resellers
- Manufacturing line optimization
- Spoilage prevention packaging

Food service

- Smaller plates
- Trayless dining

Transport, wholesale, retail

- Waste tracking & analytics
- Cold chain management
- Improved inventory management
- Standardized date labelling
- Packaging adjustments

Consumers

- Consumer education campaigns

Analytical approach

Measures to reduce fruit and vegetable waste – two examples

Secondary reselling

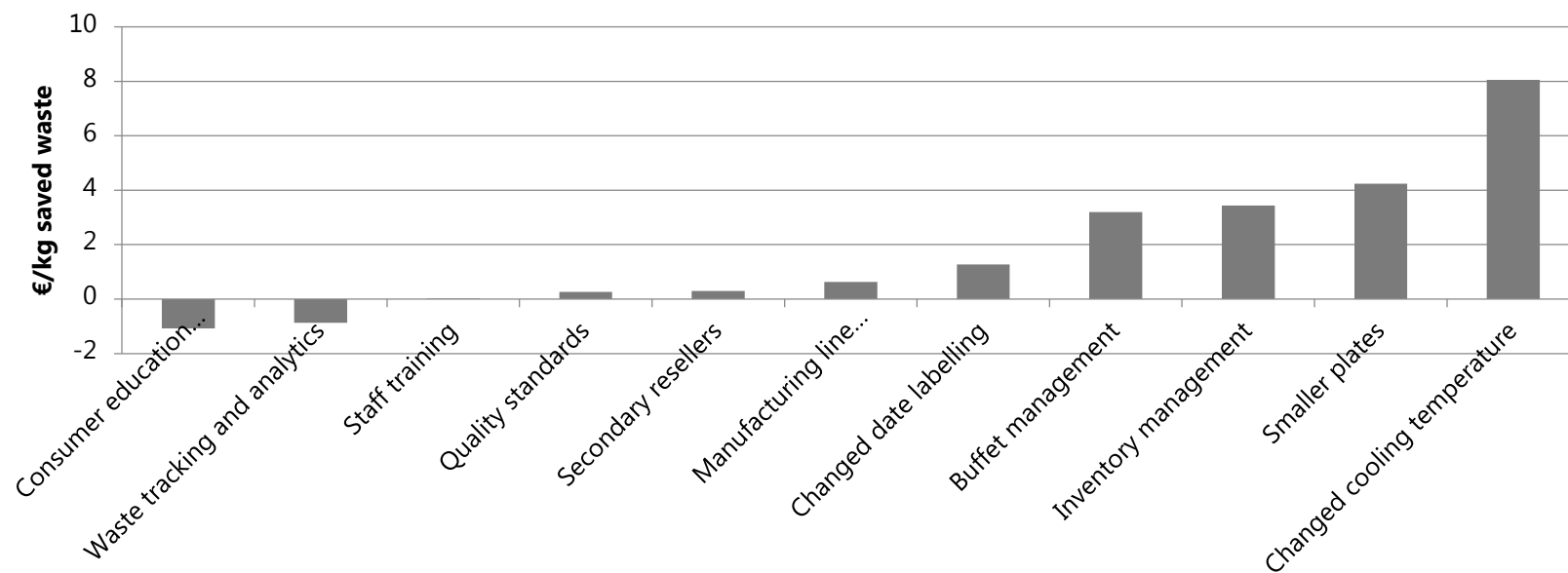
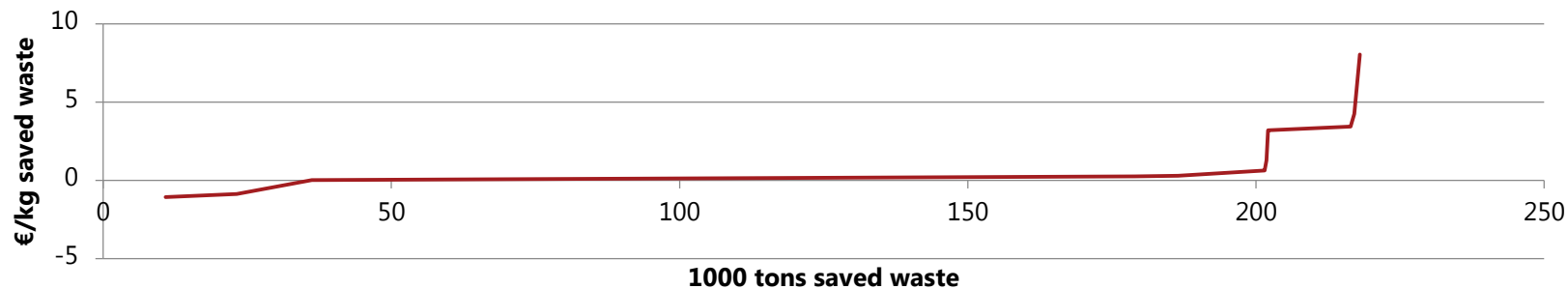
- Establish market for second-grade products to food service production
- Fixed cost to develop market infrastructure
- More products are marketed
- Saved ingredient cost for food service operators

Waste tracking in professional kitchens

- Observed by consultant
- Identify sources of food waste
- Suggest measures
- Fixed cost for consultancy service
- Saved ingredient cost
- Reduced kitchen waste

Some preliminary results

Fruits and Vegetables - VERY PRELIMINARY!



Discussion

Discussion

- Large variation in cost-effectiveness of food waste prevention measures
- Depends on food category – and on position in the supply chain
- Relevant data is scarce
 - Food waste data
 - Data on behavioural parameters
- Work in progress - results are preliminary and uncertain!

Thanks for your attention!