



Quantification of food waste in EU Member States using material flow analysis

Webinar on Food Waste Measurement

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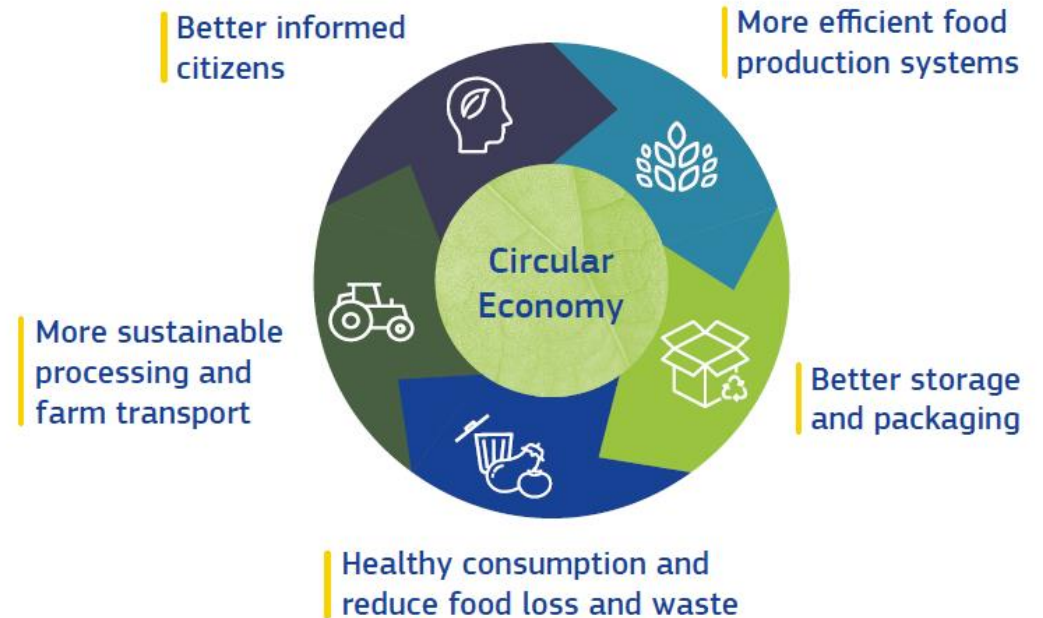
Content

- Context
- Mass Flow System to account for food waste at EU and MS level
- Quantification of food waste along the food chain: the case of the potatoes
- Main challenges and next steps
- Concluding remarks

Context

- Globally **1.3 billion tonnes of food wasted** annually
- EU committed to **SDG 12.3 target** (halving food waste at consumption and distribution, overall reduction along the entire food chain by 2030)
- Food waste reduction at the heart of the **Farm to Fork** strategy for Sustainable food, a key component of the **European Green Deal**

Farm to Fork will contribute to achieving a circular economy – from production to consumption:



EC (2019)

Context

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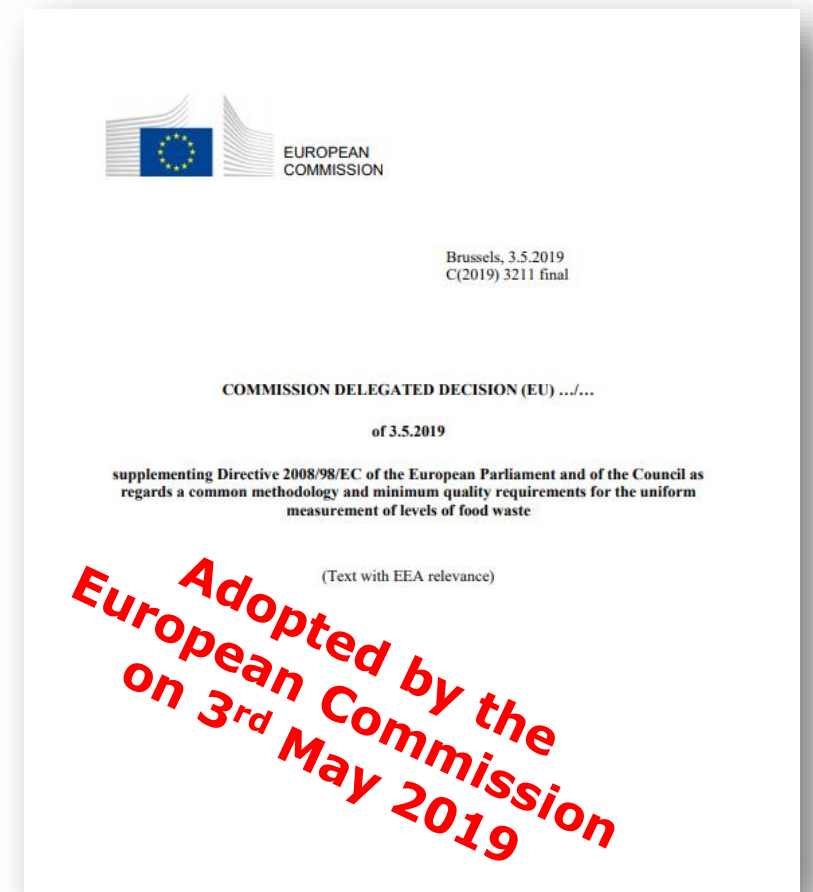
EC (2019)

NEED TO ESTABLISH A BASELINE

Food waste generation at MS level

Delegated Decision on food waste measurement:

- Setting a “**common methodology and minimum quality requirements for the uniform measurement of levels of food waste**”
- Member States to report by **30/06/2022 on food waste generated in 2020** following a format for data reporting and submitting a quality check report
- **Food waste amounts should be measured** and reported for each stage of the supply chain **at least once every 4 years**



Food waste generation at MS level

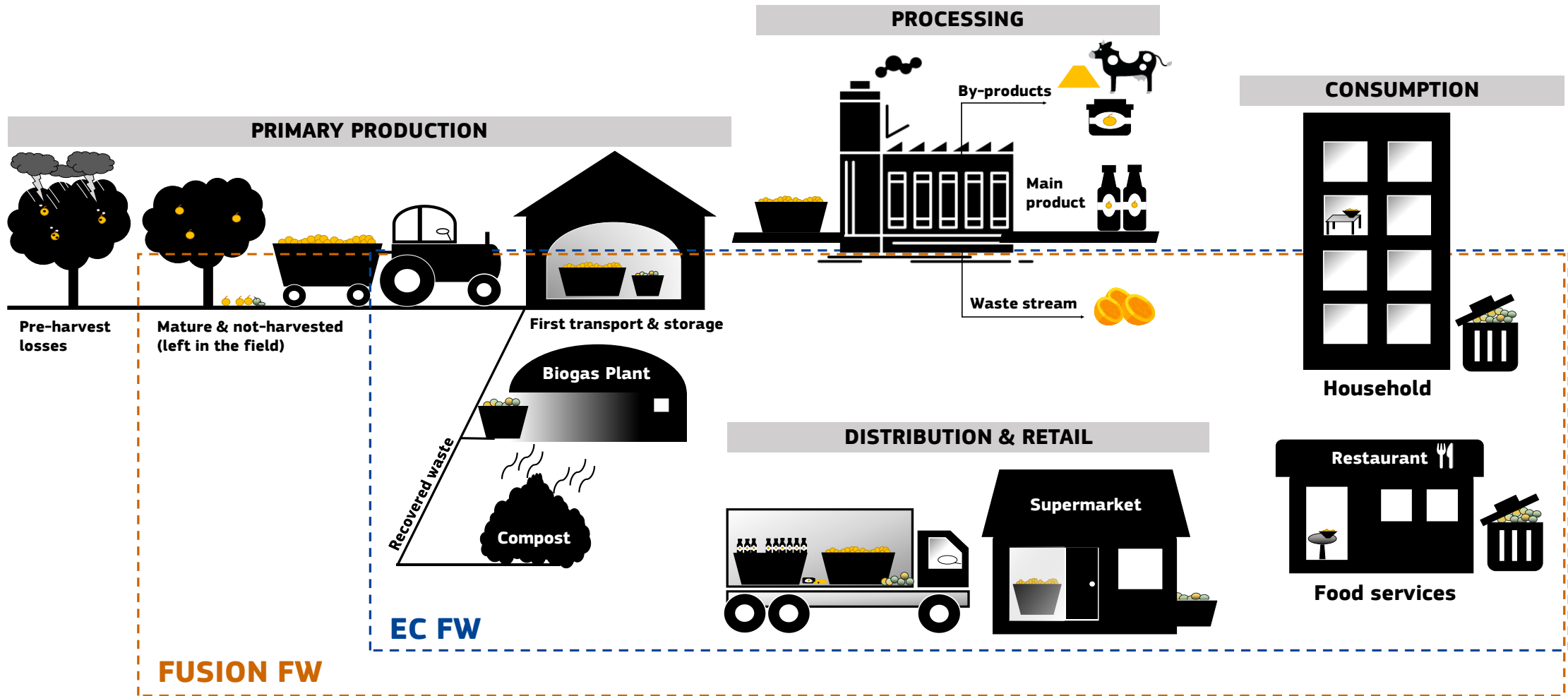
Food waste definition - provided in amendment to Directive 2008/98/EC on Waste (European Commission, 2018)

“All food as defined in Article 2 of Regulation (EC) No 178/2002 of the European Parliament and of the Council (European Parliament and Council, 2002) that has become waste.

The definition of 'food' laid down in Regulation (EC) No 178/2002 encompasses food as a whole, along the entire food supply chain from production until consumption. Food also includes inedible parts, where those were not separated from the edible parts when the food was produced, such as bones attached to meat destined for human consumption. Hence, food waste can comprise items that include parts of food intended to be ingested and parts of food not intended to be ingested.

‘Waste’ means any substance or object which the holder discards or intends or is required to discard” (European Parliament and Council, 2008).

Food waste definition



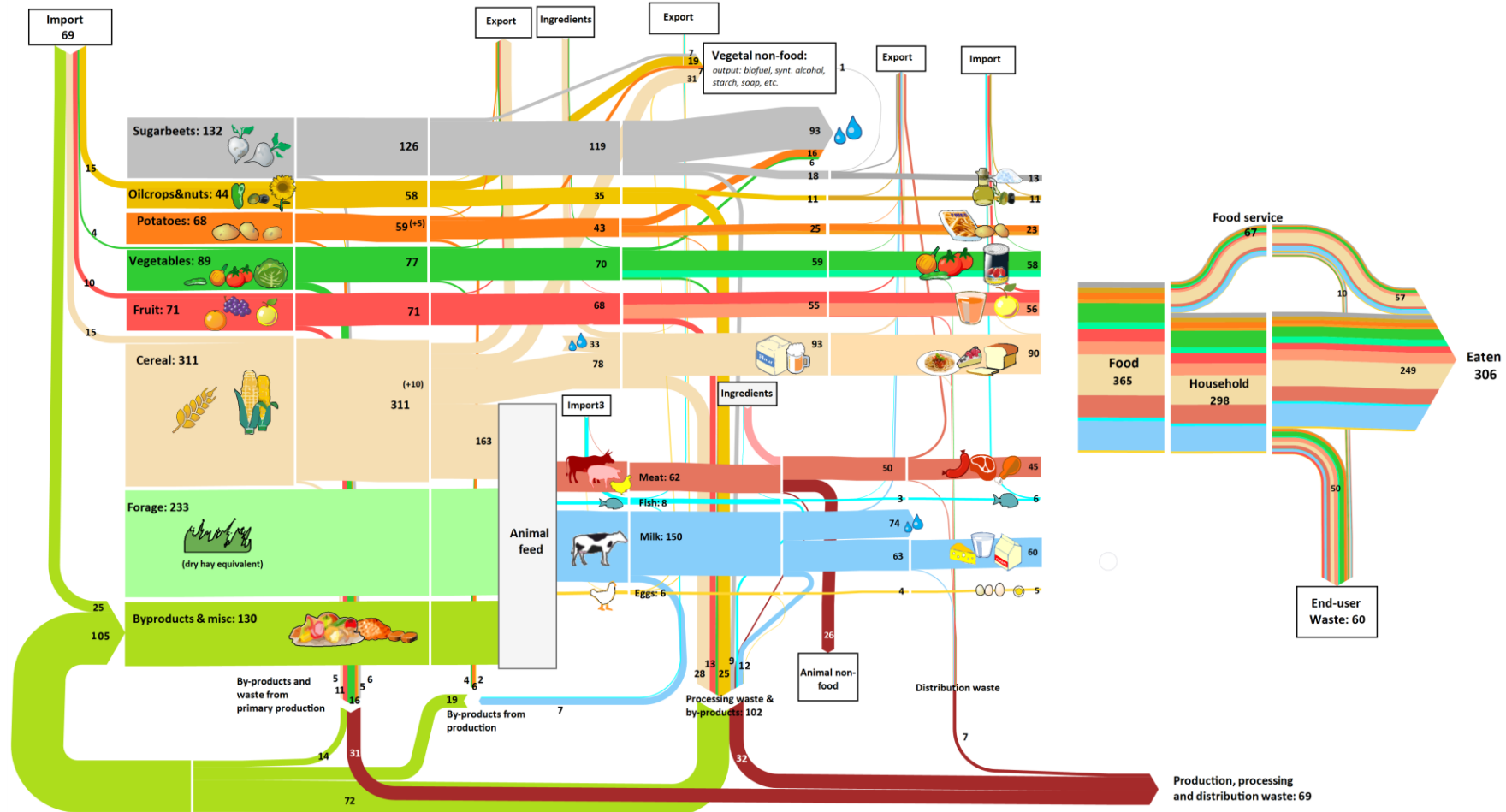
Food waste balancing system

Model to based on material flow analysis, statistical data, and technical and scientific literature

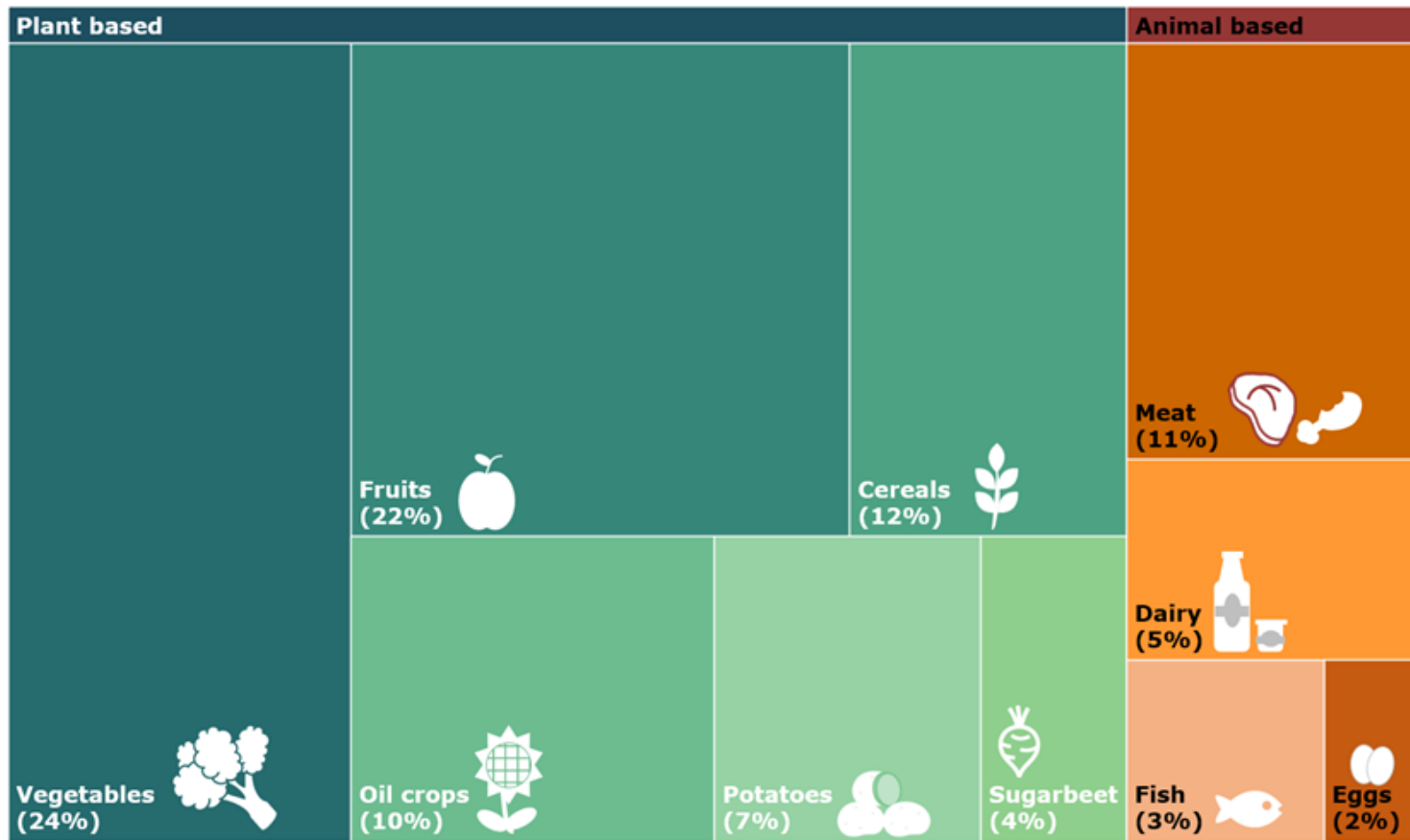
- Provide an estimation of food waste currently generated at EU and MS level on a yearly basis
- Compare and complement the amounts that will be reported by MSs
- Provide a consistent overview of food waste evolution and inform possible food waste reduction targets
- Provide a benchmark to assess data quality in the estimations of food waste for the years where direct measurements are not available (e.g. based on socio-economic indicators)

Building a food waste balancing system at MSs level

Based on the model built for the EU 2011, derived for all MSs. Data estimated between 2000 and 2017

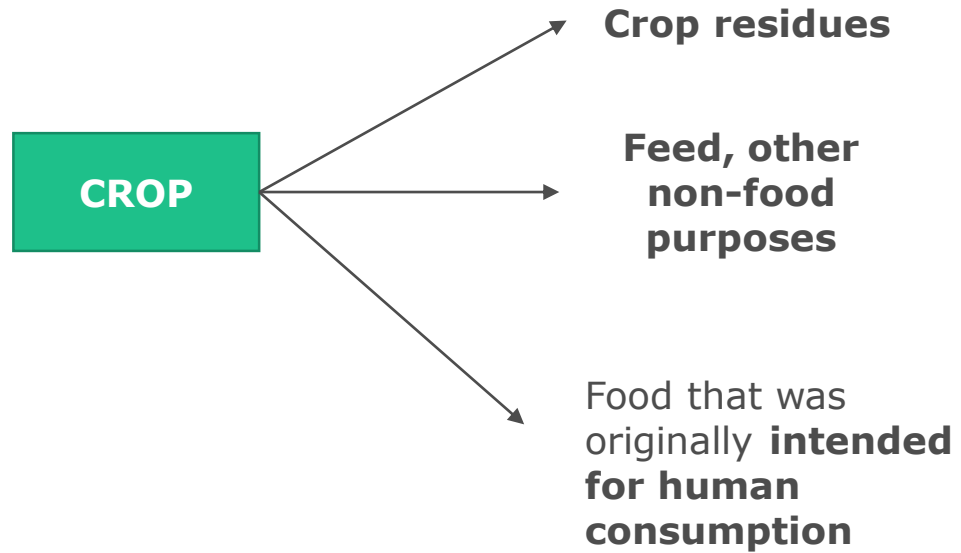


Food waste quantification EU 28, 2011

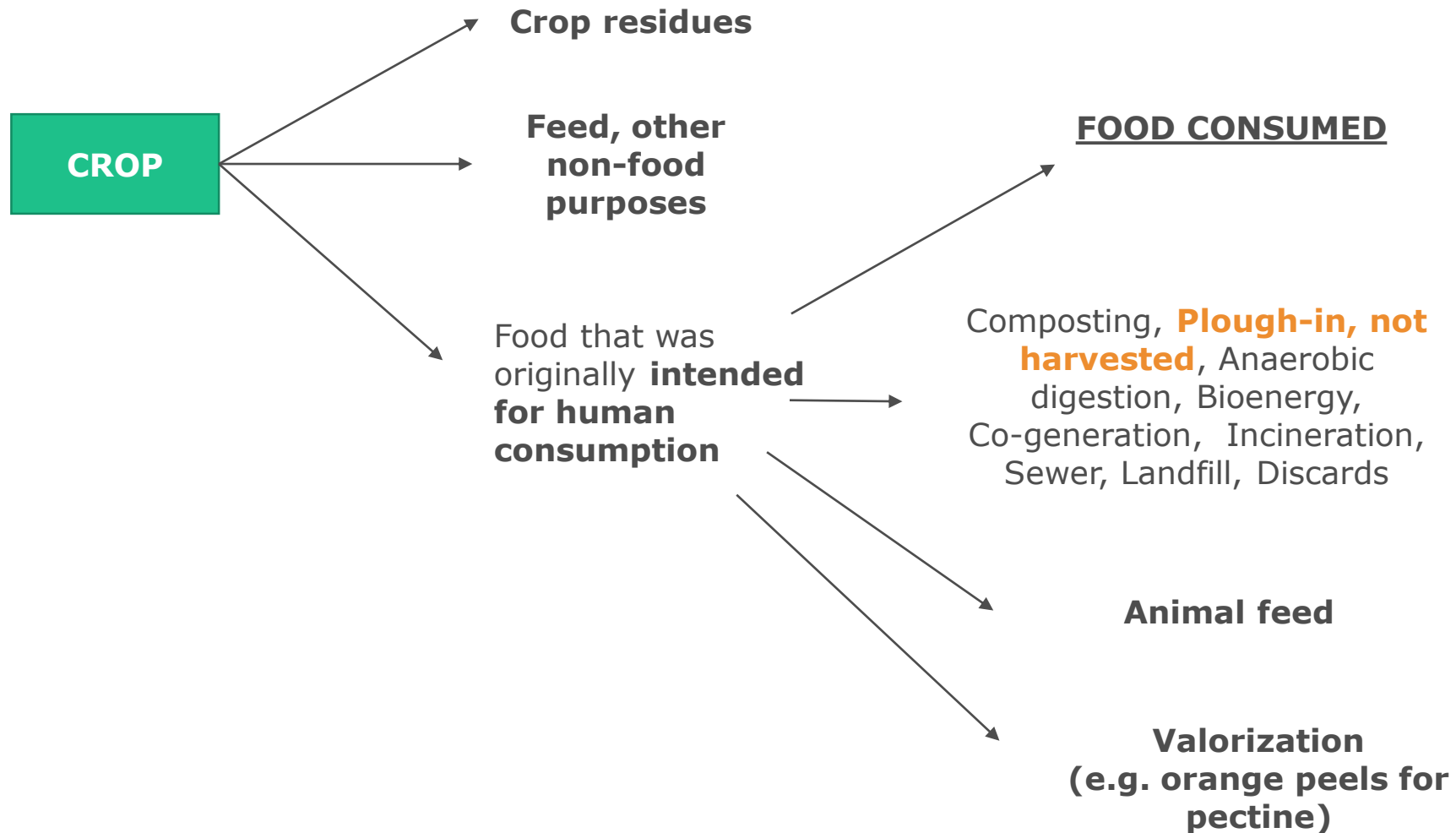


Food waste
in EU-28:
129 Mt fm

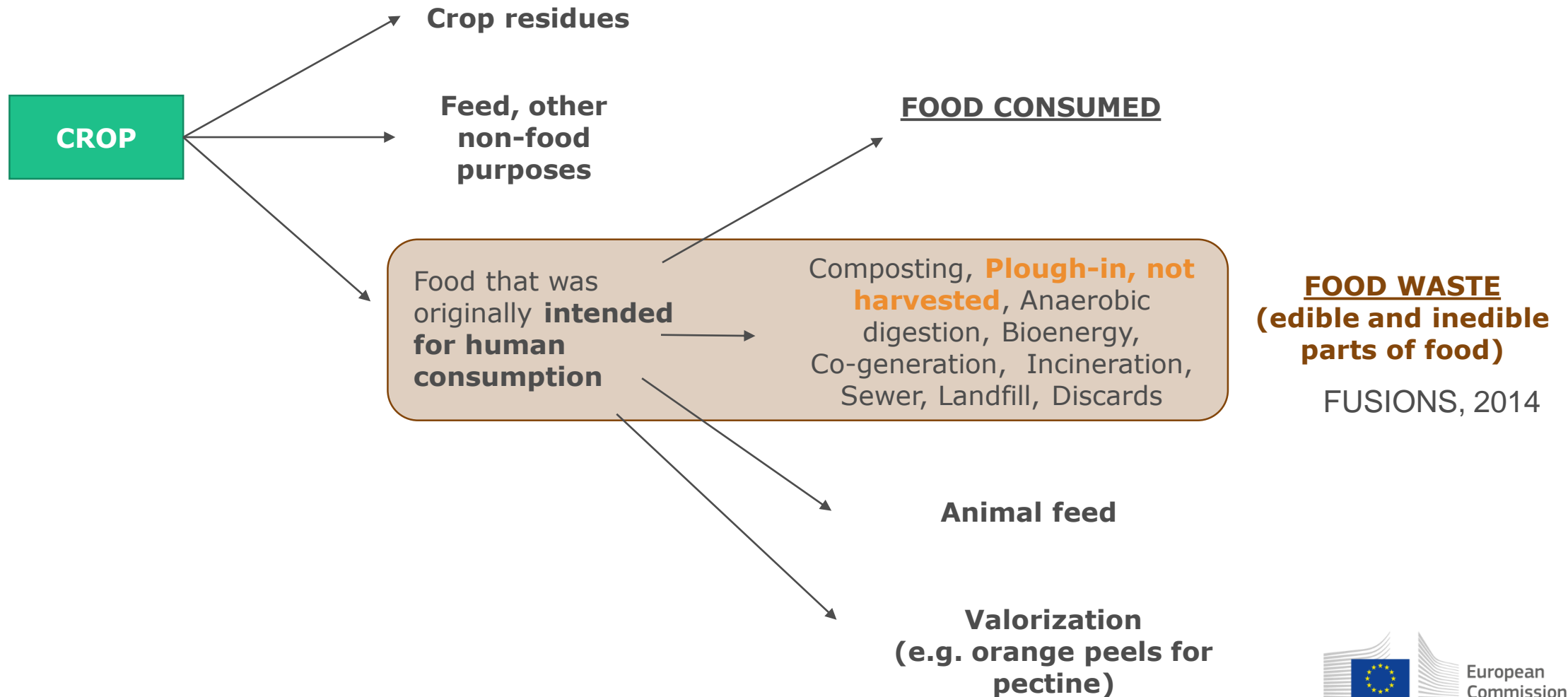
What the model accounts for



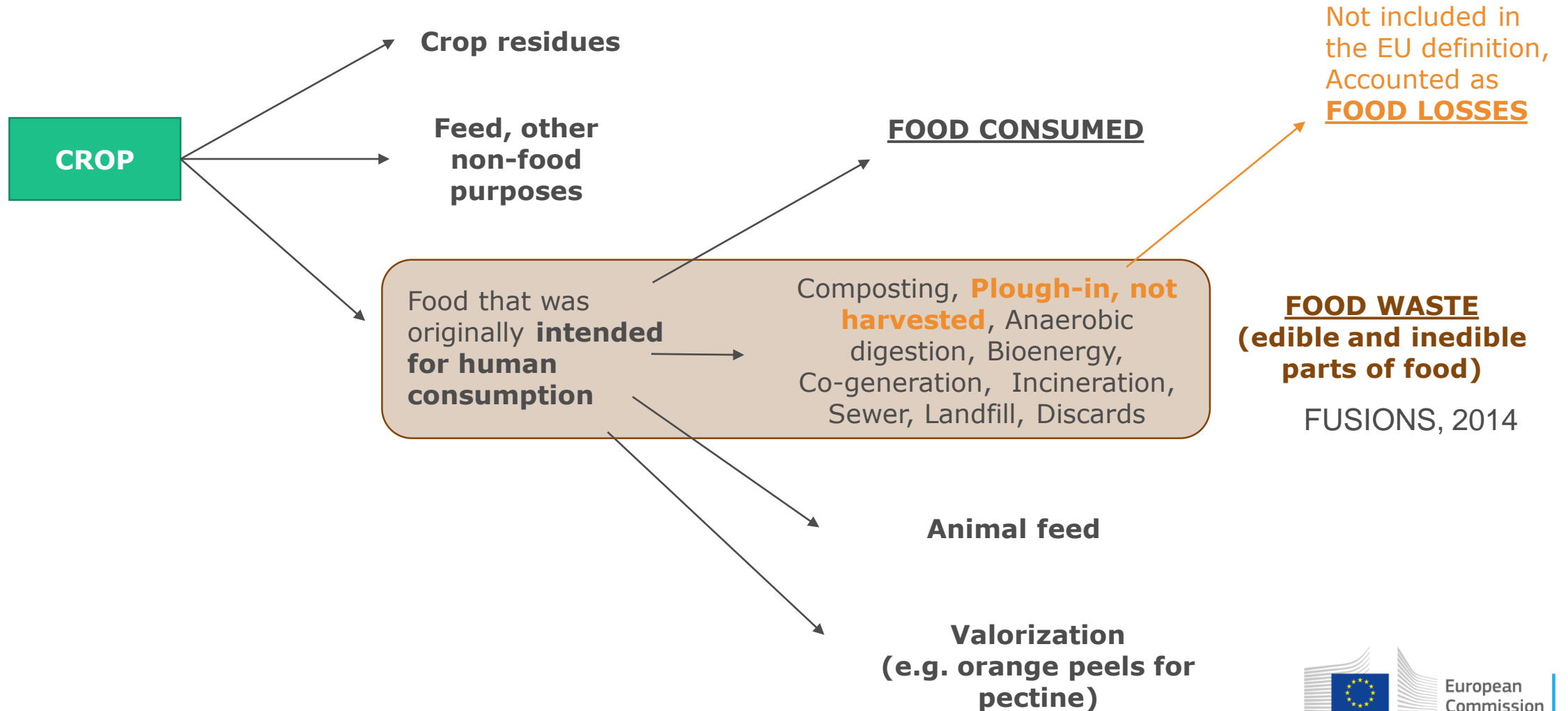
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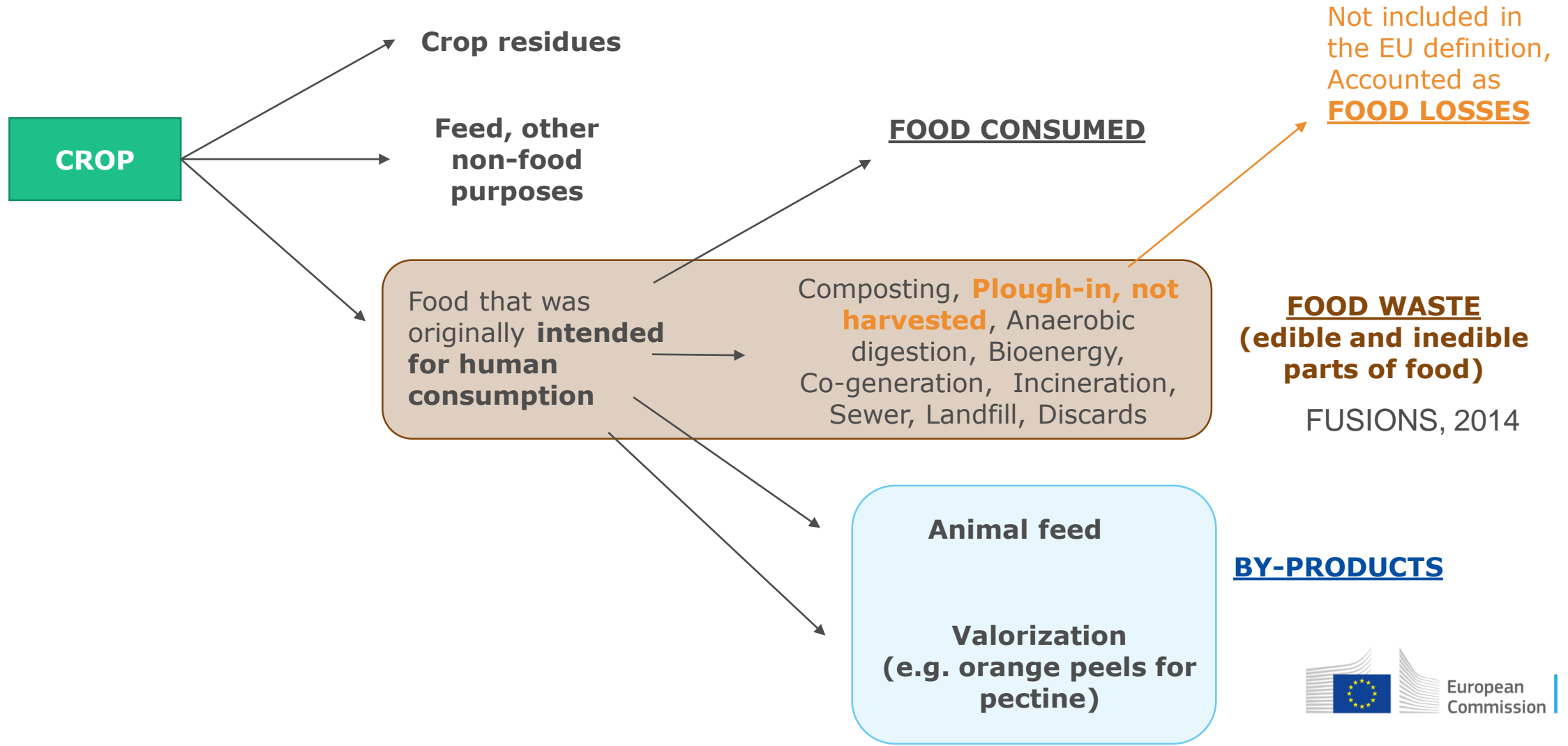
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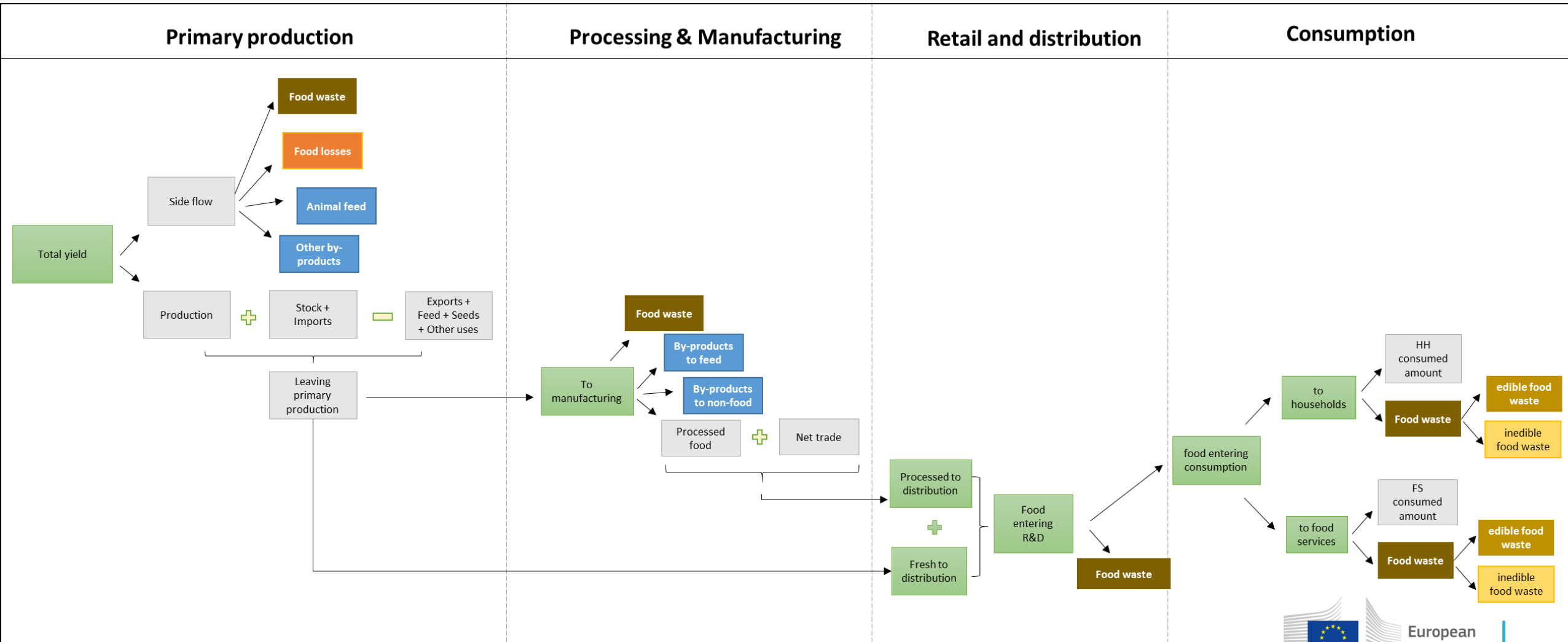
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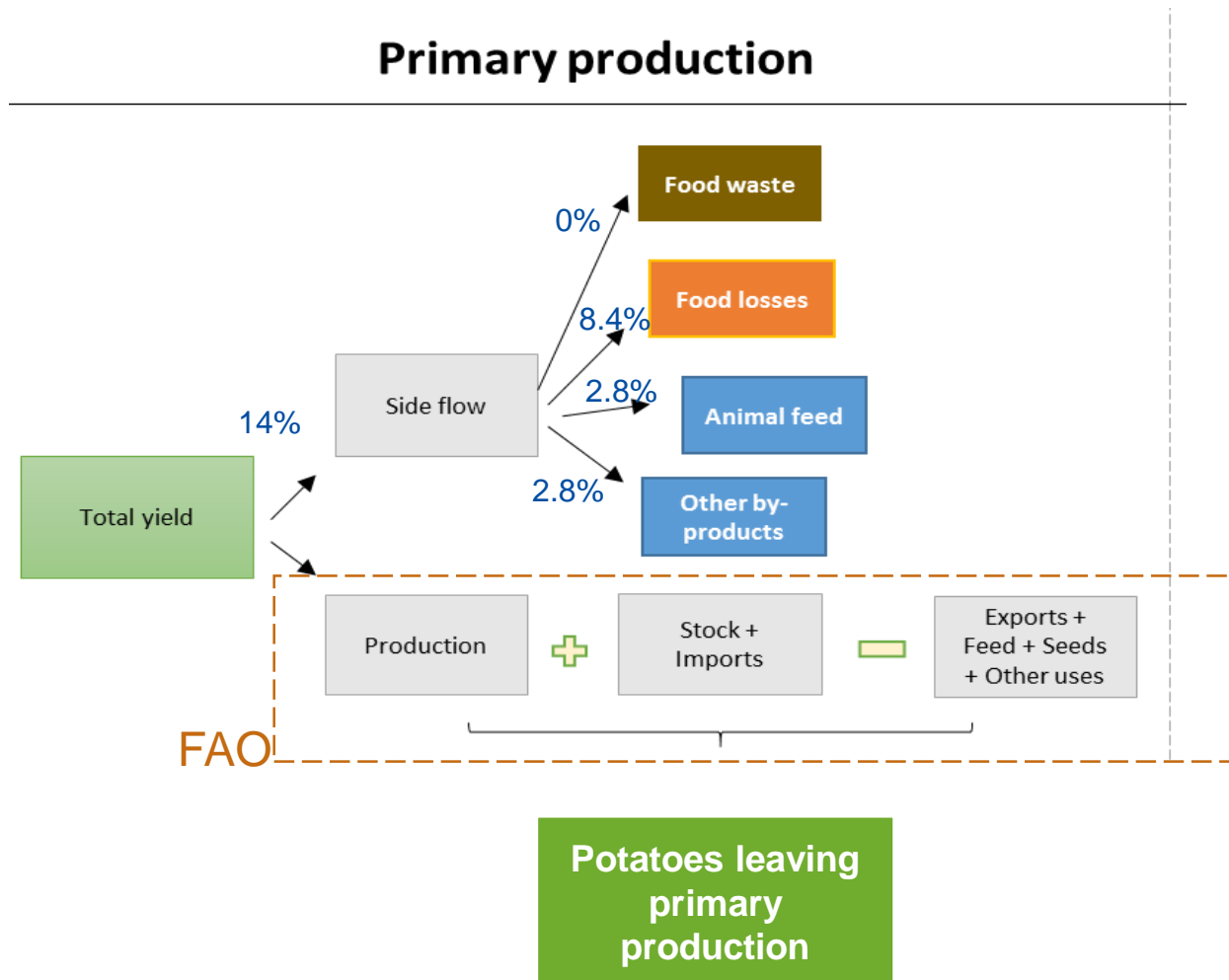
Data sources used

Source	Information provided	Completeness	Main issues
FAOSTAT	Production and trade of crops and livestock products, processed crops, commodity balance sheets (CBS)	Good data coverage (some imputed data)	Limited plant based processed products CBS providing quantities in terms of primary equivalents
Eurostat	Production and trade of crops and livestock products, production and trade of manufactured food	Agricultural databases present good data coverage, while processing and trade databases present several data gaps	At primary production missing uses Several data gaps (especially at country level) due to confidentiality issues
Industry associations	Inputs/outputs of food manufacturing for different countries and products	N/A	Not official data and not publicly available
EFSA	Food consumption data	Good coverage of products, but data provided for only 19 EU MSs	Low comparability across countries Tendency of survey respondents to underestimate their food intake
Scientific literature	Food waste percentages of input flows based on direct measurement	Very scattered, available only for a few countries at product level	Assumptions on the transferability of the waste coefficients to different contexts

Conceptual scheme of the model

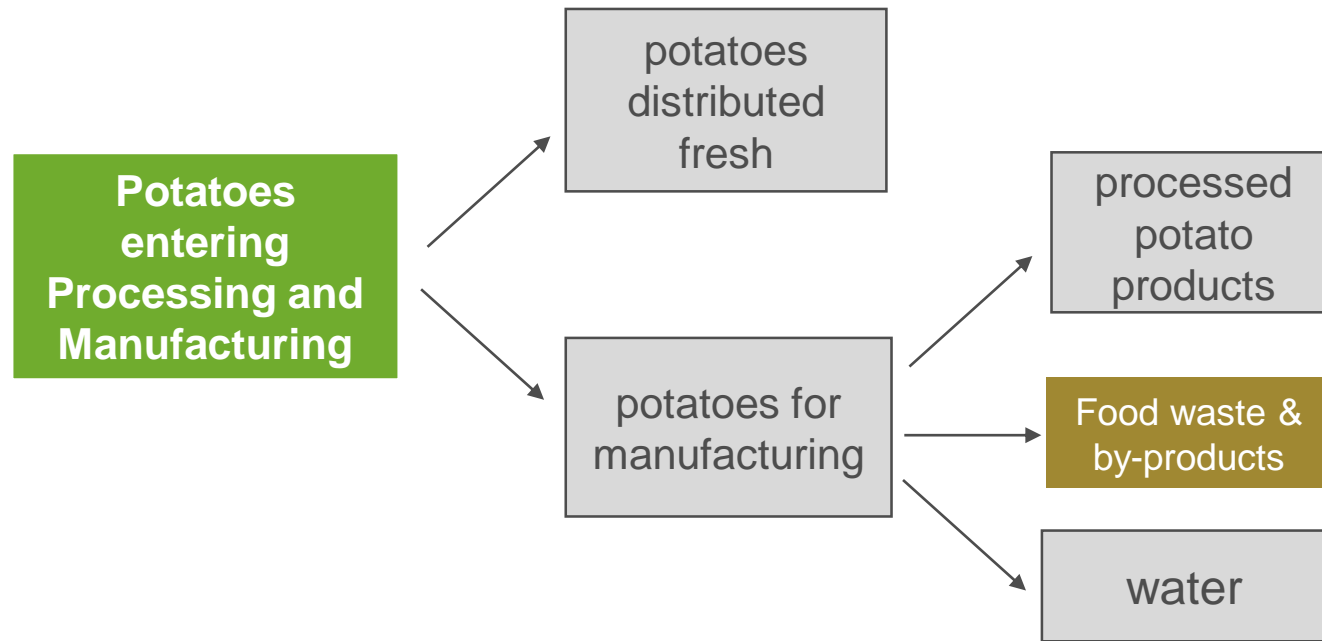


Modelling food waste generation at primary production: the case of potatoes

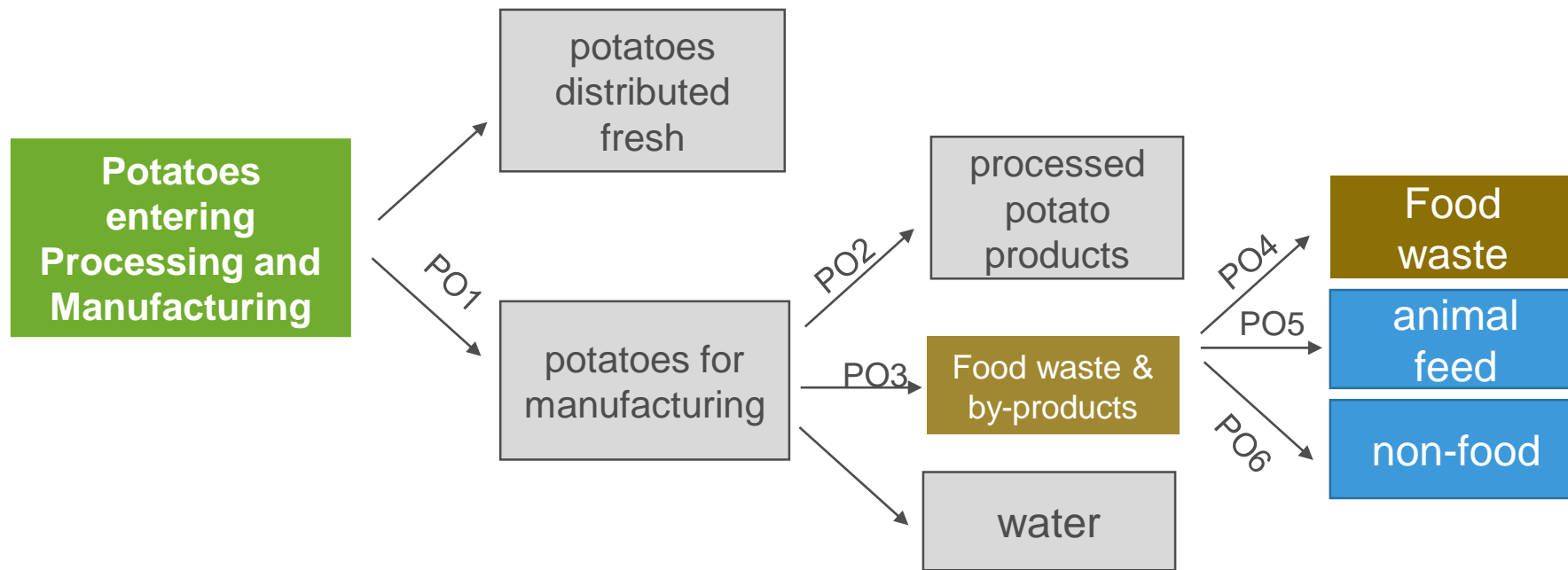


Coefficients from ADEME (2013)

Modelling food waste generation at processing and manufacturing: the case of potatoes

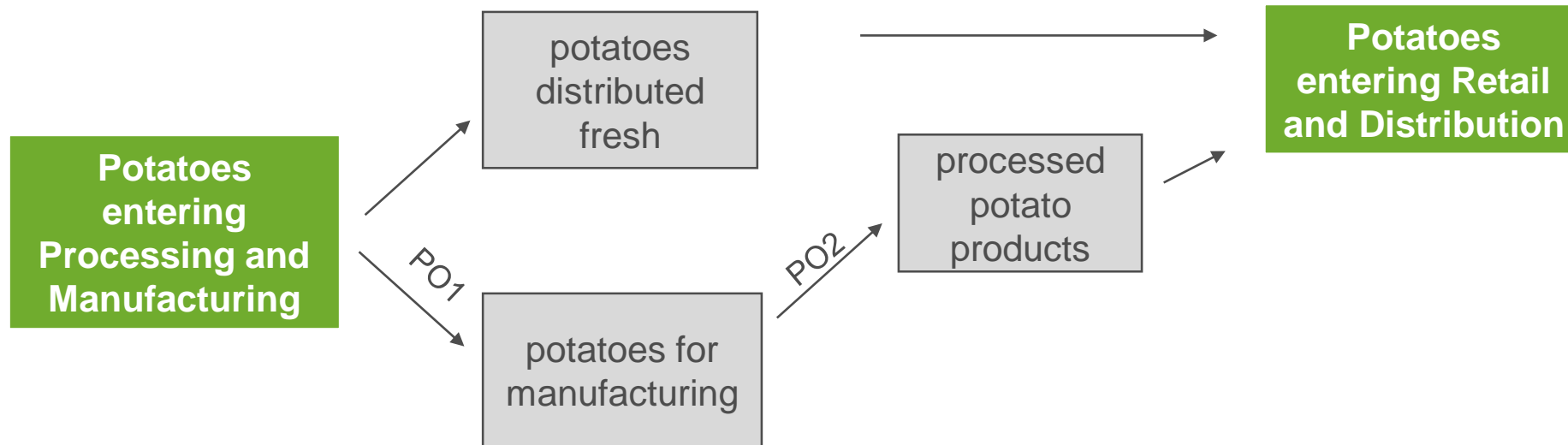


Modelling food waste generation at processing and manufacturing: the case of potatoes



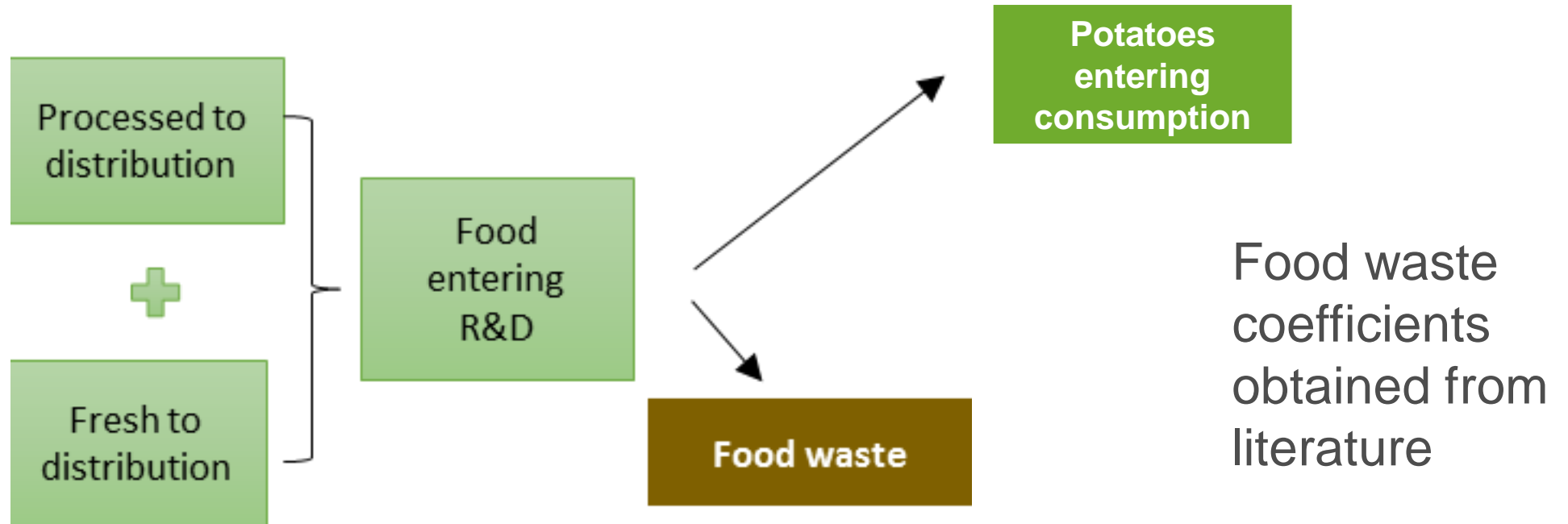
Coefficients obtained from European Potato Processors' Association (EUPPA)

Modelling food waste generation at processing and manufacturing: the case of potatoes

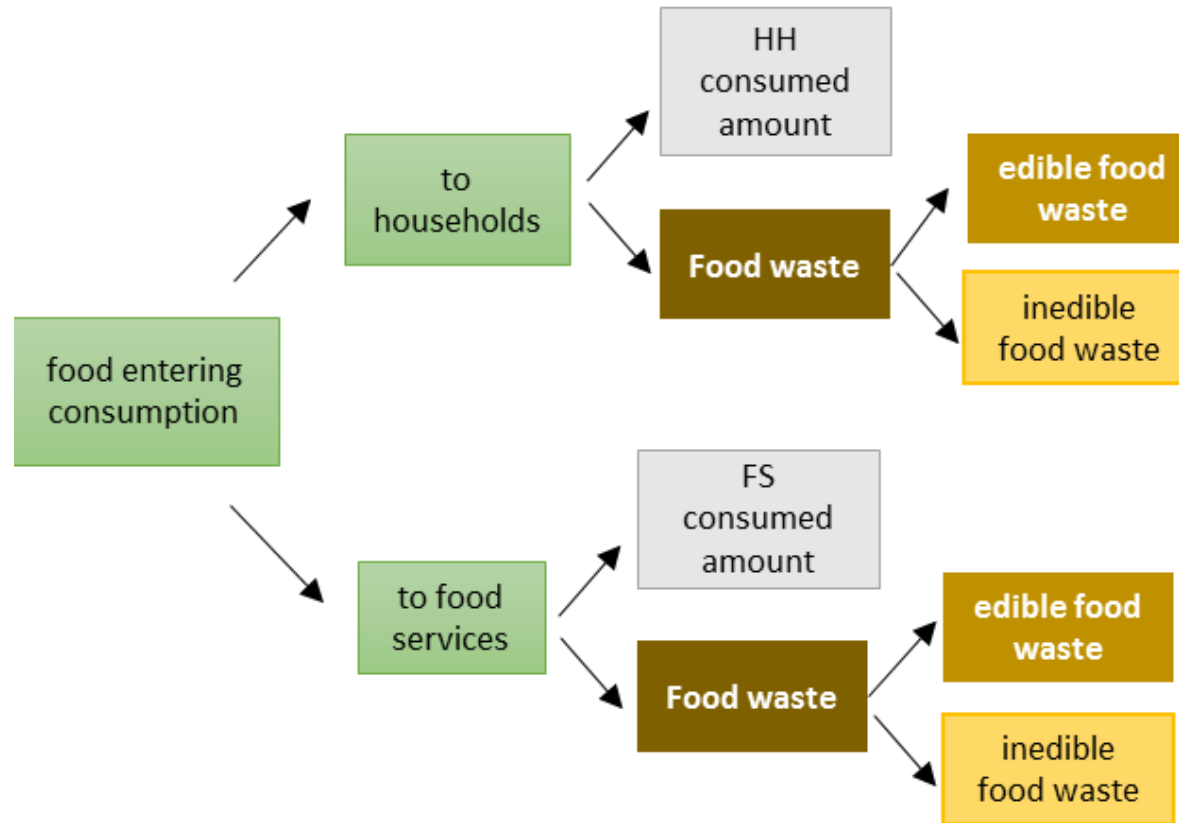


Coefficients obtained from European Potato Processors' Association (EUPPA)

Modelling food waste generation at retail and distribution: the case of potatoes

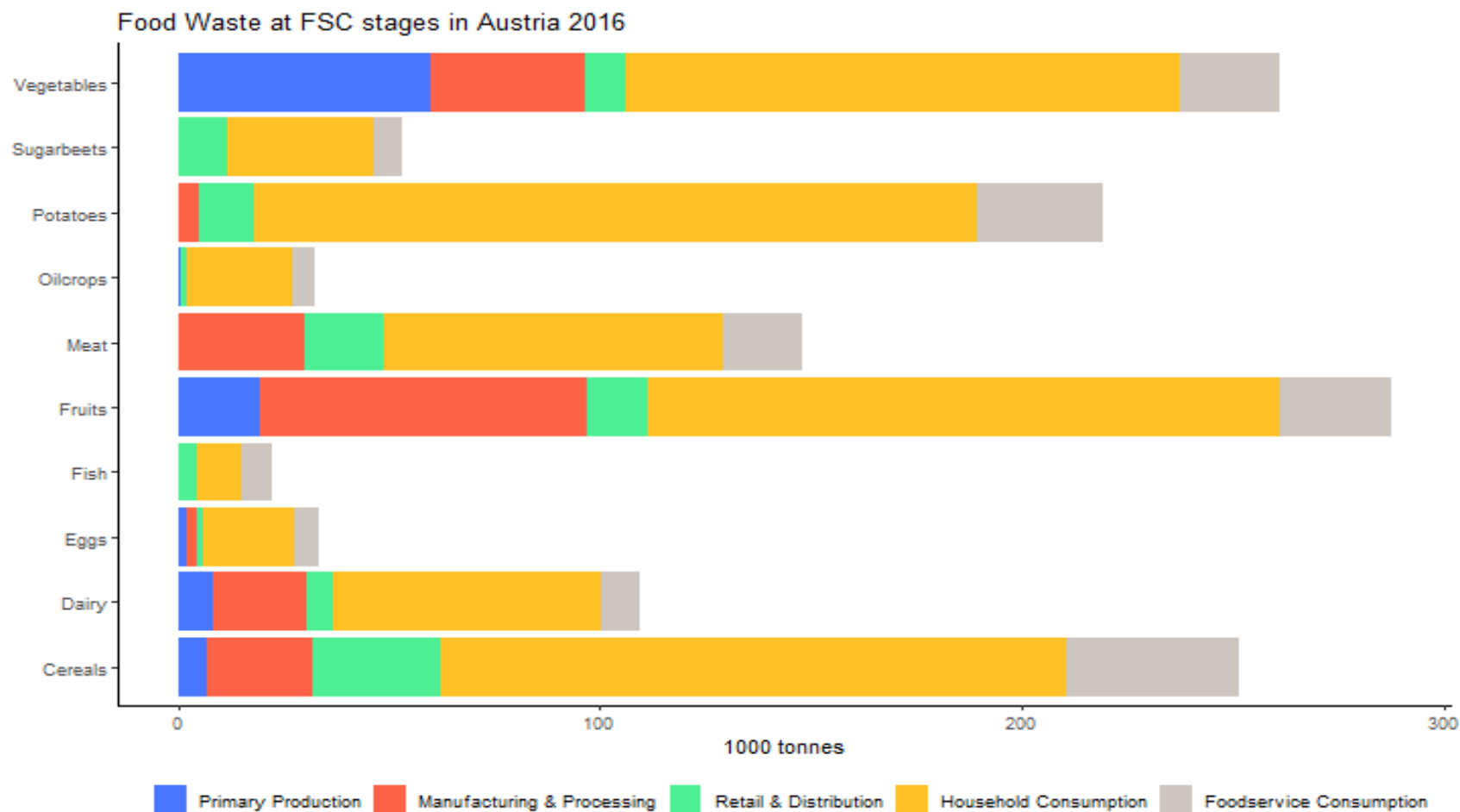


Modelling food waste generation at consumption: the case of potatoes

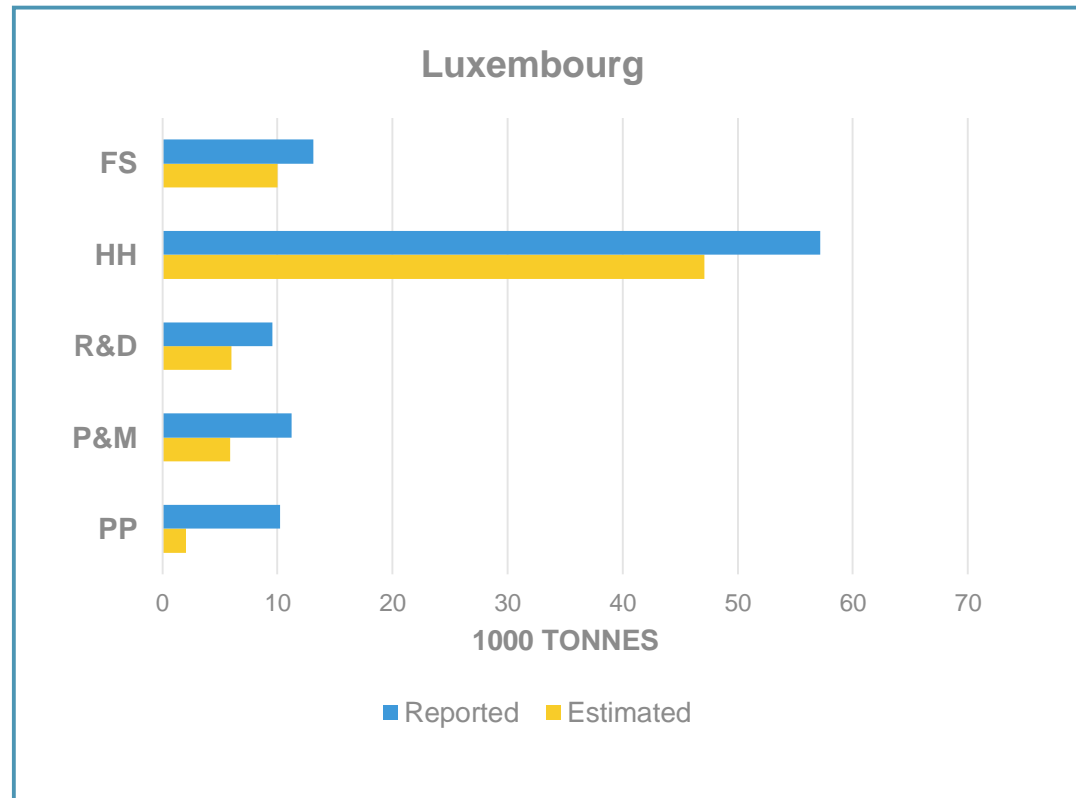


Food waste coefficients obtained from literature

Food waste obtained from the model e.g. Austria 2016



Comparison with food waste values reported



Main challenges in adapting the model at MS level

- Lower availability of data on production and trade of food manufactured products (data gaps in Procom database)
- Lack of official statistical data on amounts of products distributed for fresh consumption for certain food groups (fruit, vegetables, tubers)
- Representativeness of food waste coefficients obtained from the scientific literature and available only for few countries

Further development of the model

- Collection of country specific food waste coefficients, disaggregated per stage of the food supply chain and per food group
- Extend the food products considered and increase level of disaggregation of some food groups
- Improve the modelling of food waste and by-products generated at the processing stage by contacting manufacturing associations
- Assess the possibility of using dynamic food waste coefficients to capture changes in food waste generation patterns in result of behaviour changes

Conclusions

- Development of a food waste balancing system to estimate food waste generation at Member States level through time
- This will allow comparing and complementing the results of food waste generation reported by each Member State
- Communication with trade associations is key to refine the modelling of the processing stage and gather data on food waste/by-products generation
- Country-specific data is crucial to increase the robustness of the model

Thank you



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