



# 1<sup>st</sup> Meeting

Unveiling the Essence: Defining Food Loss in the European Union Framework – Challenges and Significance

14/03/24



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## **1. Main objectives / Context**

# Main objectives



1. Quantifying the problem along the entire agri-food chain in the EU.



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# Context

## EU/UN Roadmap to Reduce Food Waste

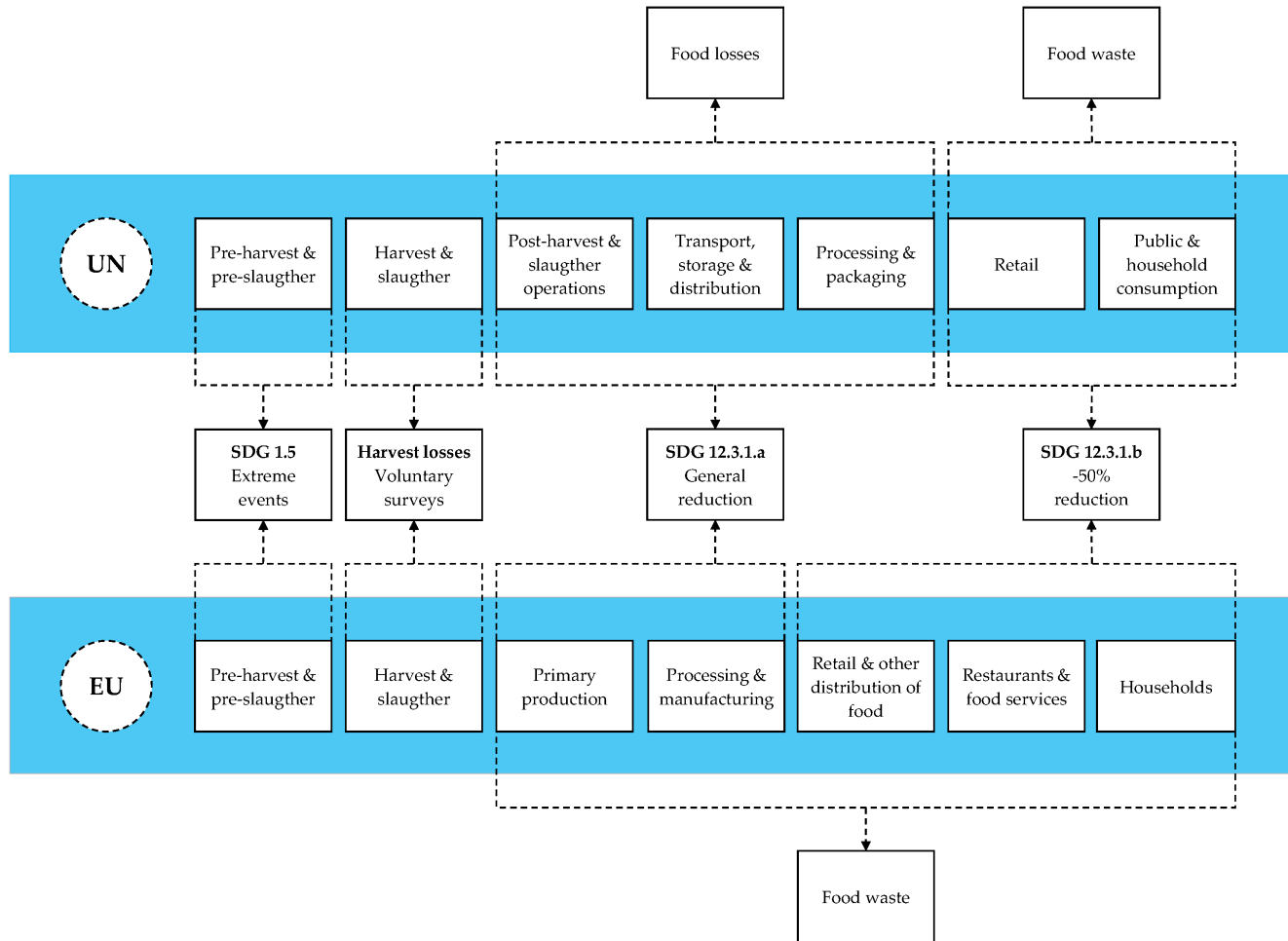
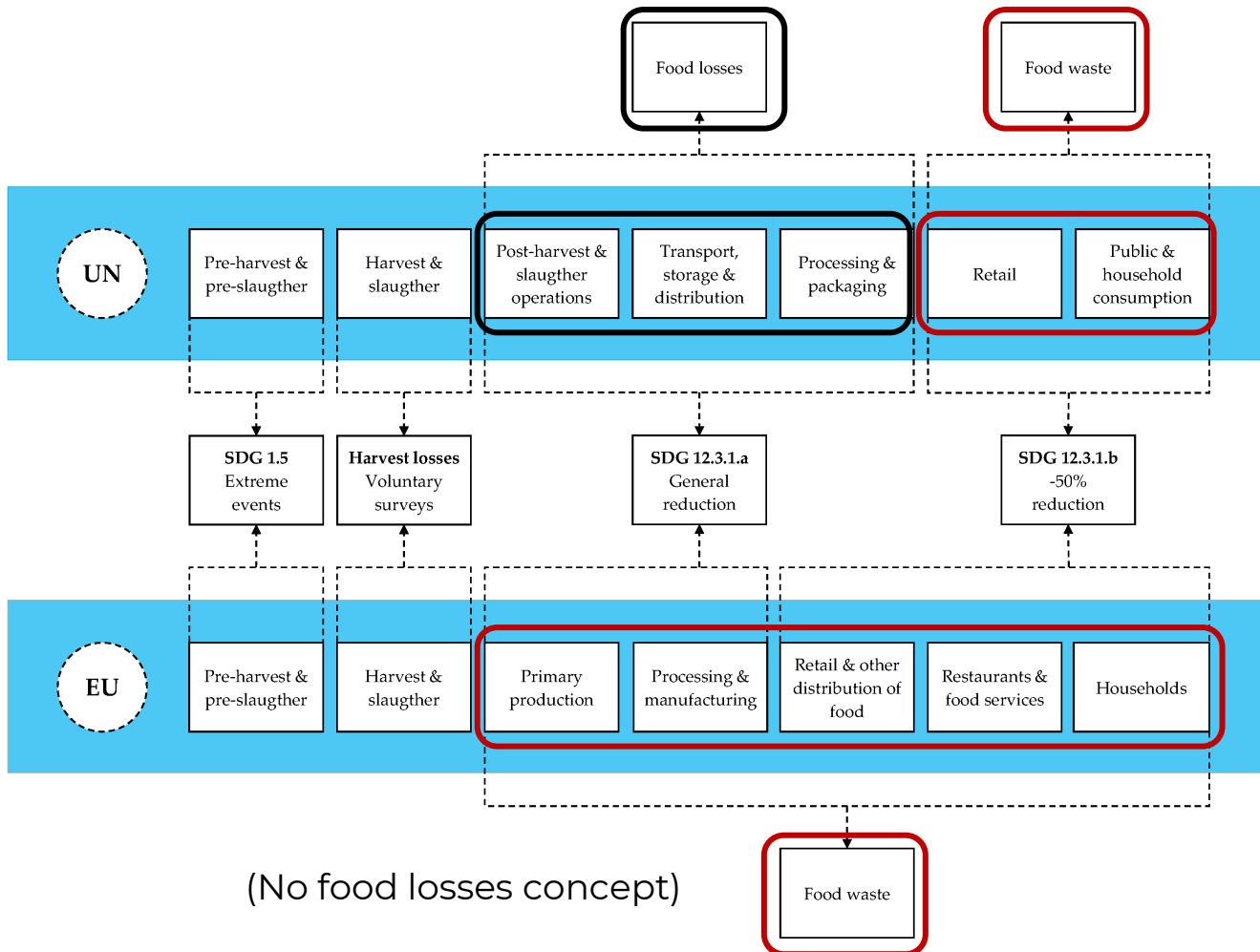


Image source: Leverenz, D.; Schneider, F.; Schmidt, T.; Hafner, G.; Nevárez, Z.; Kranert, M. Food waste generation in germany in the scope of european legal requirements for monitoring and reporting. Sustain. 2021, 13, doi:10.3390/su13126616

# Context

## EU/UN Roadmap to Reduce Food Waste



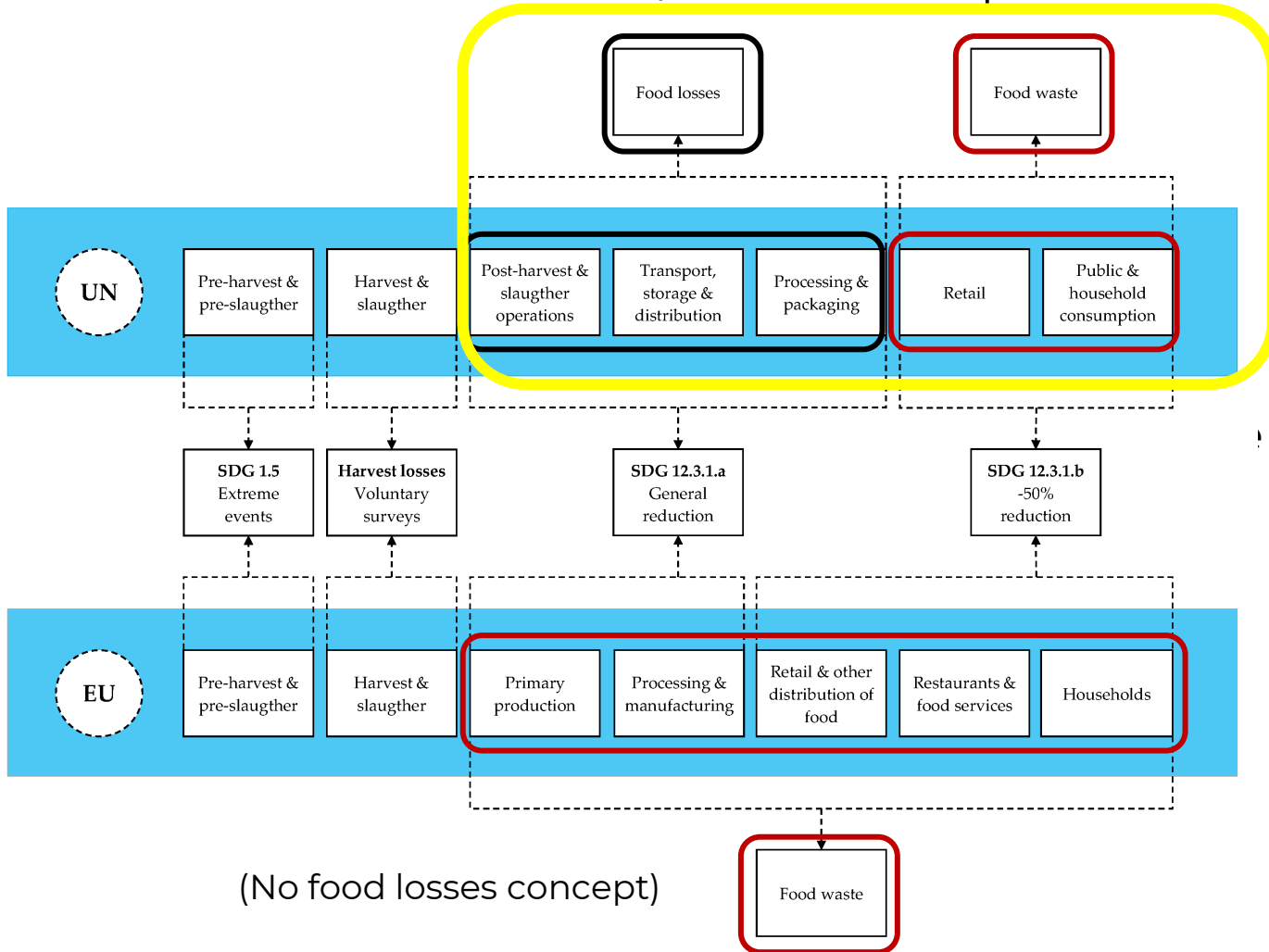
✓ The UN uses the terminologies "food losses" and "food waste," while the EU only uses "food waste." Therefore, "food losses" and "food waste" have different meanings according to the UN and EU.

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# Context

## EU/UN Roadmap to Reduce Food Waste



### FAO

- **“Food loss** is the decrease in the quantity or quality of food resulting from decisions and actions by food suppliers in the chain, excluding retail, food service providers and consumers”.
- **“Food waste** is the decrease in the quantity or quality of food resulting from decisions and actions by retailers, food services and consumers”.

(SOMA 2019)

Image source: Leverenz, D.; Schneider, F.; Schmidt, T.; Hafner, G.; Nevárez, Z.; Kranert, M. Food waste generation in germany in the scope of european legal requirements for monitoring and reporting. Sustain. 2021, 13, doi:10.3390/su13126616

# Context

## EU/UN Roadmap to Reduce Food Waste

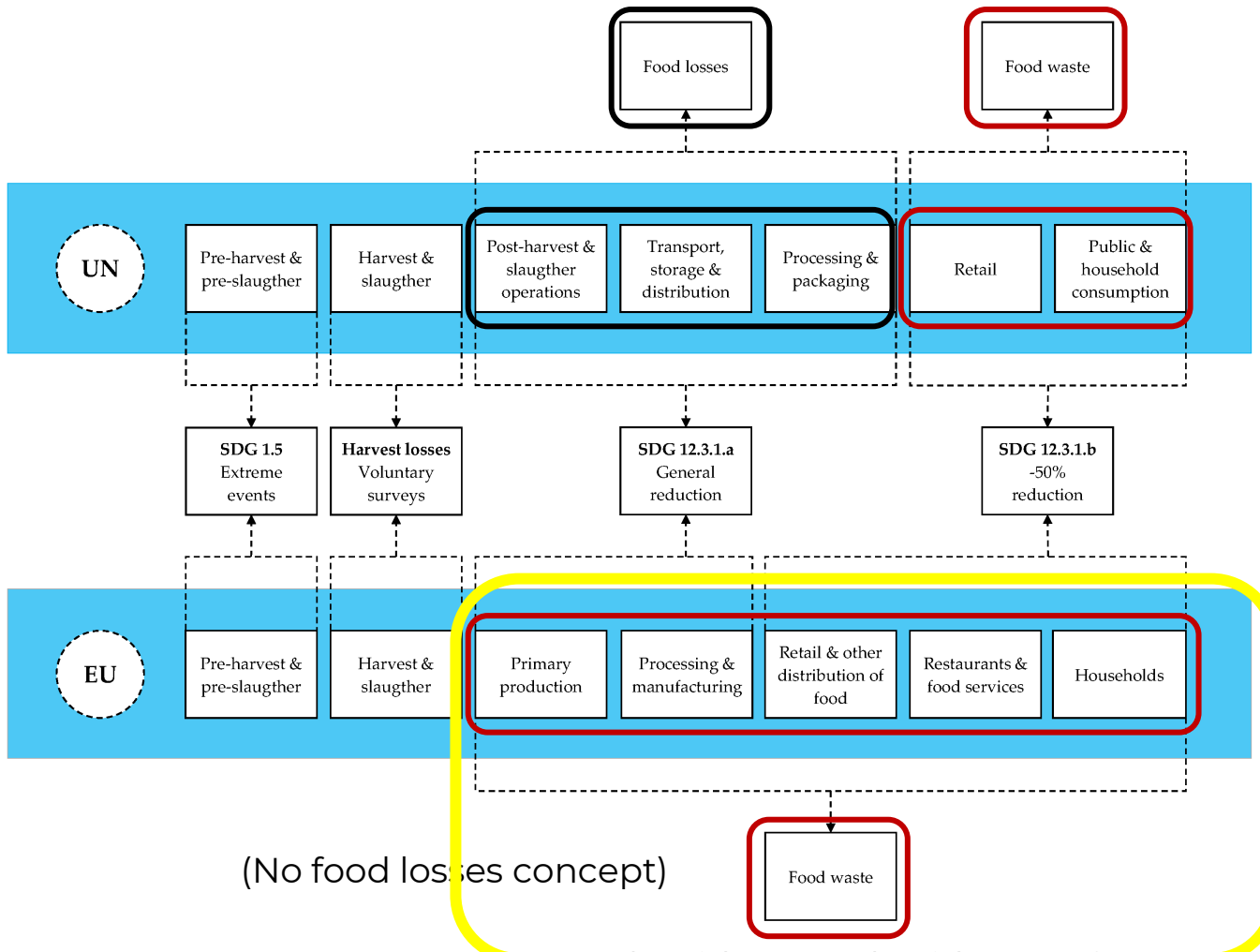


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## **Food concept** according to Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002

- **Food (or foodstuff):** means any substance or product, whether processed, partially processed, or unprocessed, intended to be, or reasonably expected to be ingested by humans. **Food** includes drink, chewing gum and any substance, including water, intentionally incorporated into the food during its manufacture, preparation or treatment. It includes water after the point of compliance as defined in Article 6 of Directive 98/83/EC and without prejudice to the requirements of Directives 80/778/EEC and 98/83/EC. **Food** shall not include:
  - (a) feed;
  - (b) live animals unless they are prepared for placing on the market for human consumption;
  - (c) plants prior to harvesting;
  - (d) medicinal products within the meaning of Council Directives 65/65/EEC (1) and 92/73/EEC (2);
  - (e) cosmetics within the meaning of Council Directive 76/768/EEC (3);
  - (f) tobacco and tobacco products within the meaning of Council Directive 89/622/EEC (4);
  - (g) narcotic or psychotropic substances within the meaning of the United Nations Single Convention on Narcotic Drugs, 1961, and the United Nations Convention on Psychotropic Substances, 1971;
  - (h) residues and contaminants
  - (i) medical devices within the meaning of Regulation (EU) 2017/745 of the European Parliament and of the Council (5).



# Main objectives



Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives

- **Waste:** means any substance or object which the holder discards or intends or is required to discard.



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# Main objectives



## Food waste concept

**Food concept** according to Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002

+

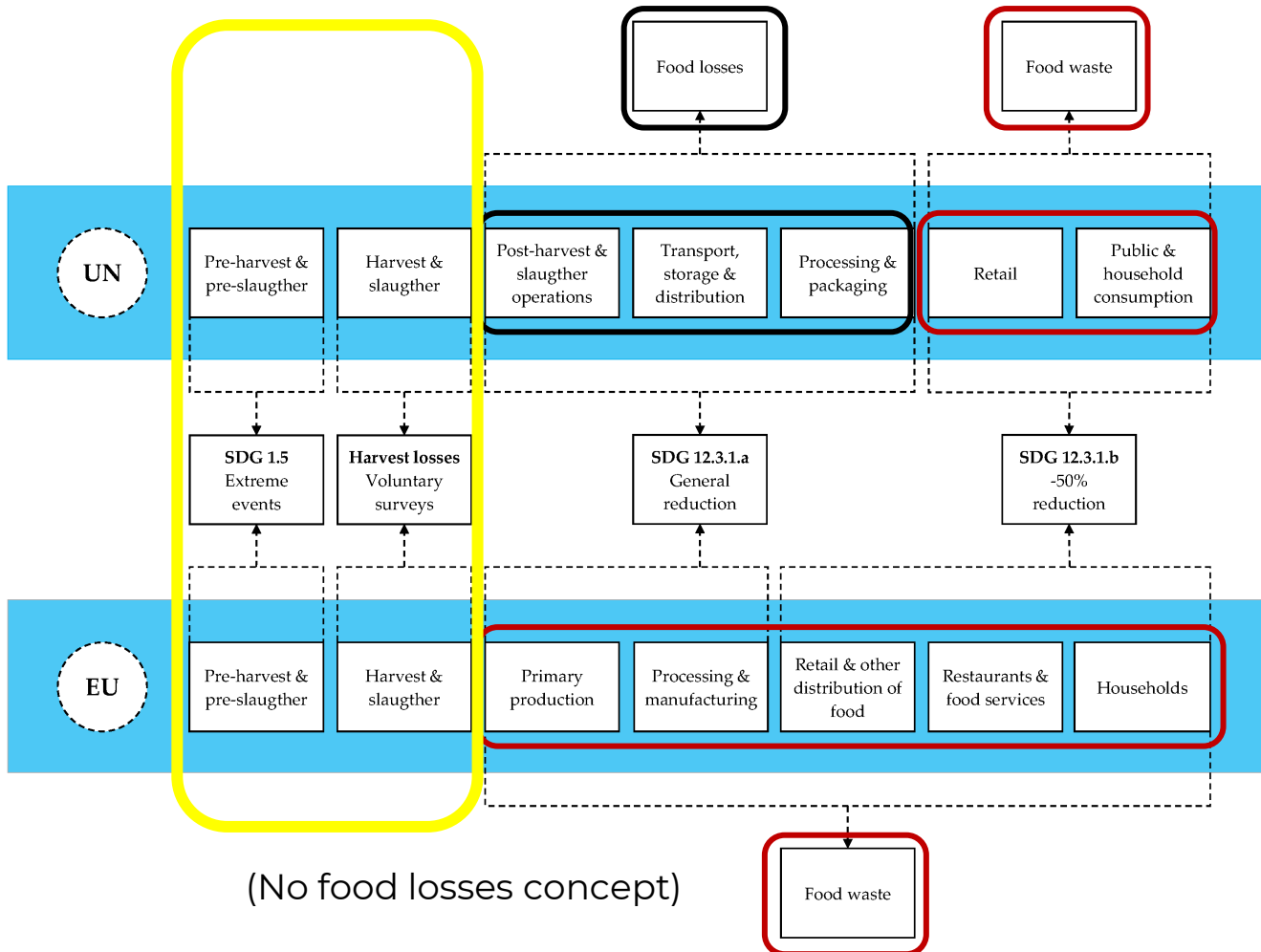
**Waste concept** according to Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives



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# Context

## EU/UN Roadmap to Reduce Food Waste



✓ The UN uses the terminologies "food losses" and "food waste," while the EU only uses "food waste." Therefore, "food losses" and "food waste" have different meanings according to the UN and EU.

✓ UN and EU **exclude the stages prior to post-harvest** from the concepts of food losses and waste

Image source: Leverenz, D.; Schneider, F.; Schmidt, T.; Hafner, G.; Nevárez, Z.; Kranert, M. Food waste generation in germany in the scope of european legal requirements for monitoring and reporting. Sustain. 2021, 13, doi:10.3390/su13126616

# Context

27.9.2019

EN

Official Journal of the European Union

L 248/77

## **COMMISSION DELEGATED DECISION (EU) 2019/1597**

**of 3 May 2019**

**supplementing Directive 2008/98/EC of the European Parliament and of the Council as regards a common methodology and minimum quality requirements for the uniform measurement of levels of food waste**

**(Text with EEA relevance)**

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives <sup>(1)</sup>, and in particular Article 9(8) thereof,



# Context

## *Article 2*

### **Methodology for the measurement of food waste**

1. Member States shall measure each year the amount of food waste generated in a full calendar year.
2. Member States shall measure the amount of food waste for a given stage of the food supply chain using the methodology set out in Annex III at least once every four years.

# Context

## Article 2

### Methodology for the measurement of food waste

1. Member States shall measure each year the amount of food waste generated in a full calendar year.
2. Member States shall measure the amount of food waste for a given stage of the food supply chain using the methodology set out in Annex III at least once every four years.

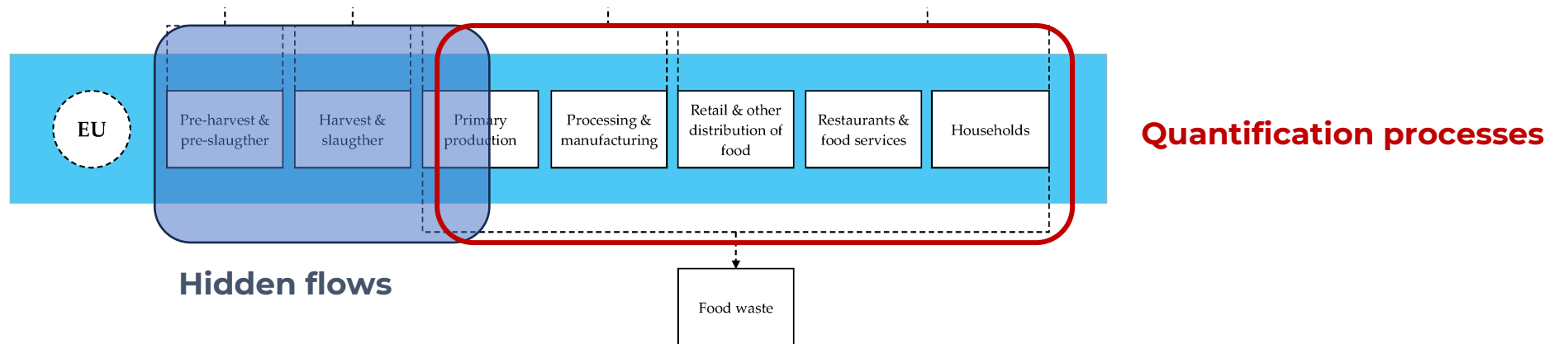


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# Context

## Agri-food chain or **agri-food system**

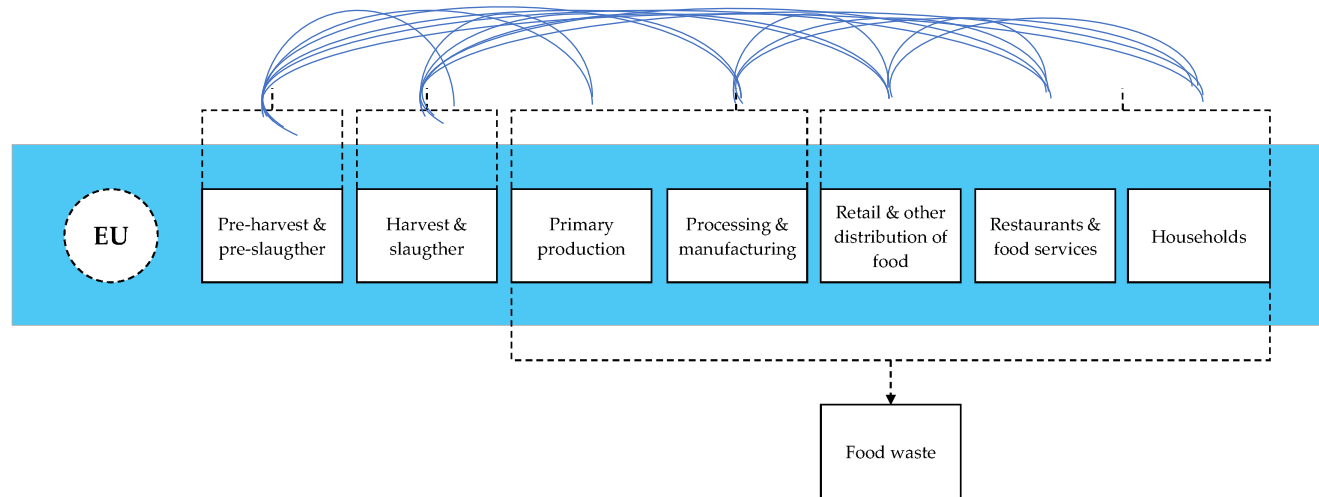


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# Context

## Agri-food chain or **agri-food system**

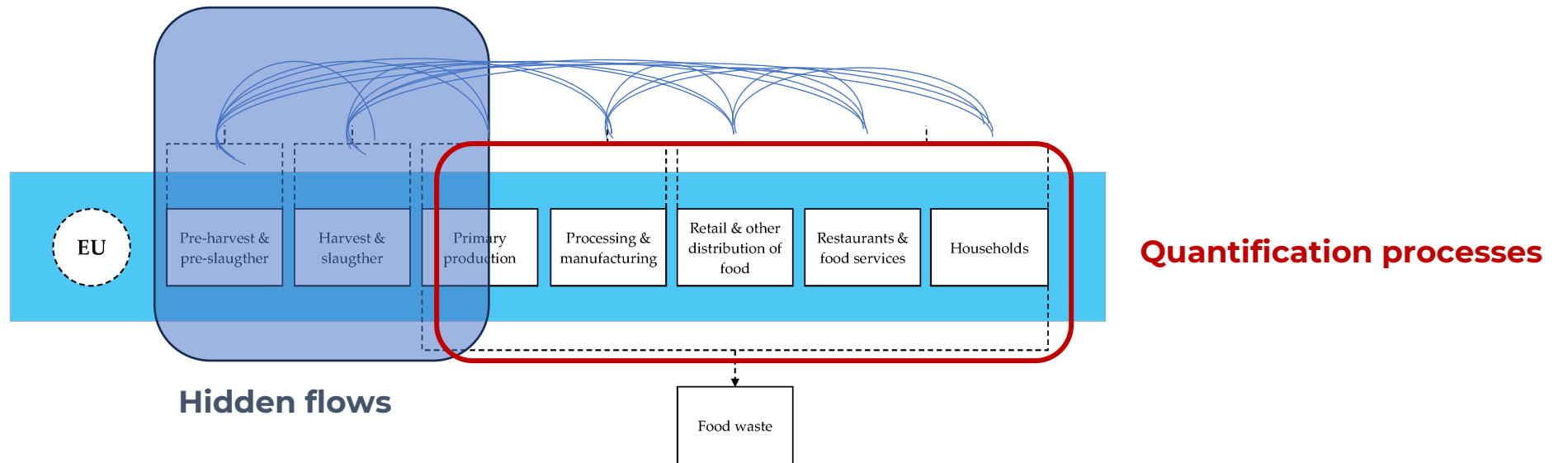


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# Main objectives

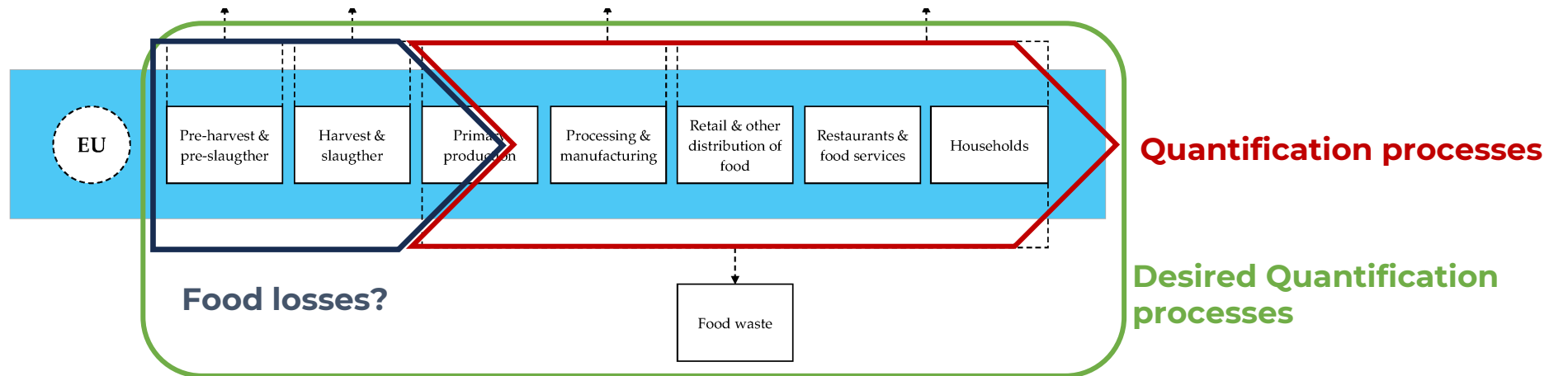


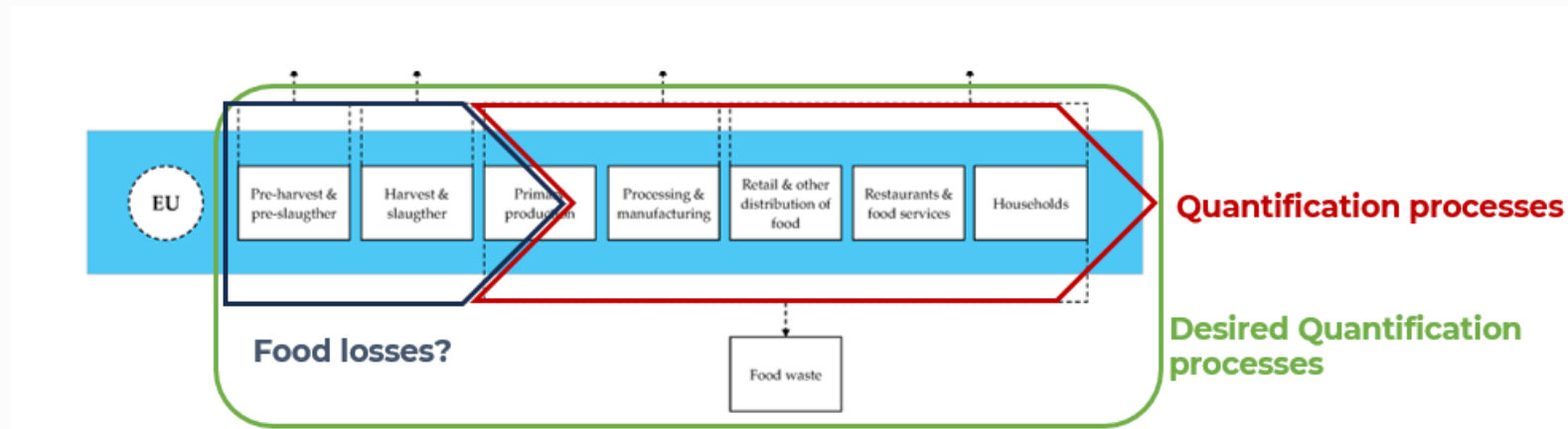
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# Main objectives



1. Quantifying the problem along the entire agri-food chain in the EU.



Important! **Avoid overlapping and gaps** between FL and FW



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# Main objectives



1. Quantifying the problem along the entire agri-food chain in the EU.
2. Reduce the problem along the entire agri-food chain in the EU.



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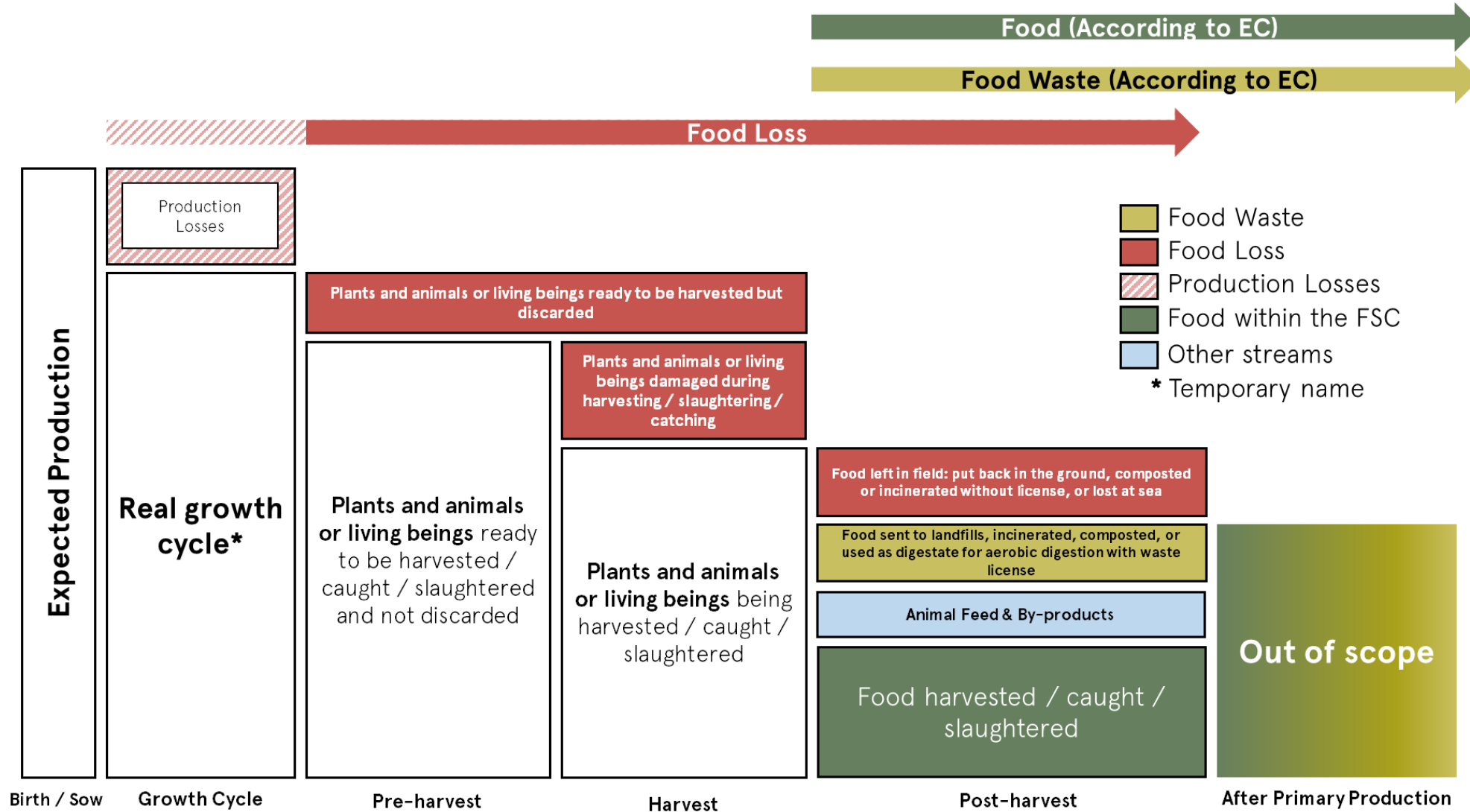
## **2. FOLOU Definitional Framework of Food Losses**



# FL Definitional Framework

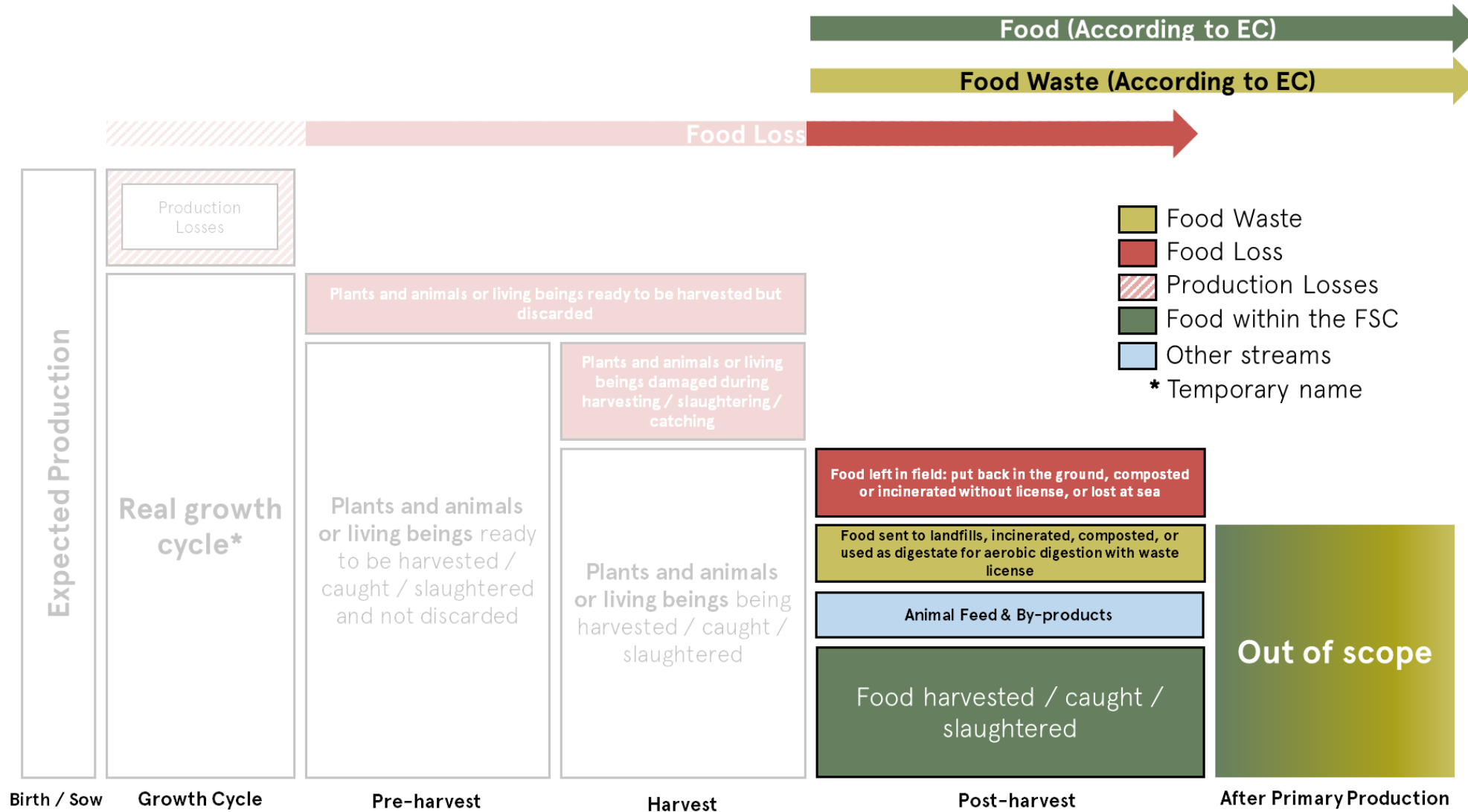
**Food loss is any harvest-mature plant, animal or living being (including inedible parts) that is not successfully harvested, as well as food removed from the supply chain during post-harvest phase that does not become animal feed, by-product or food waste**

# FL Definitional Framework

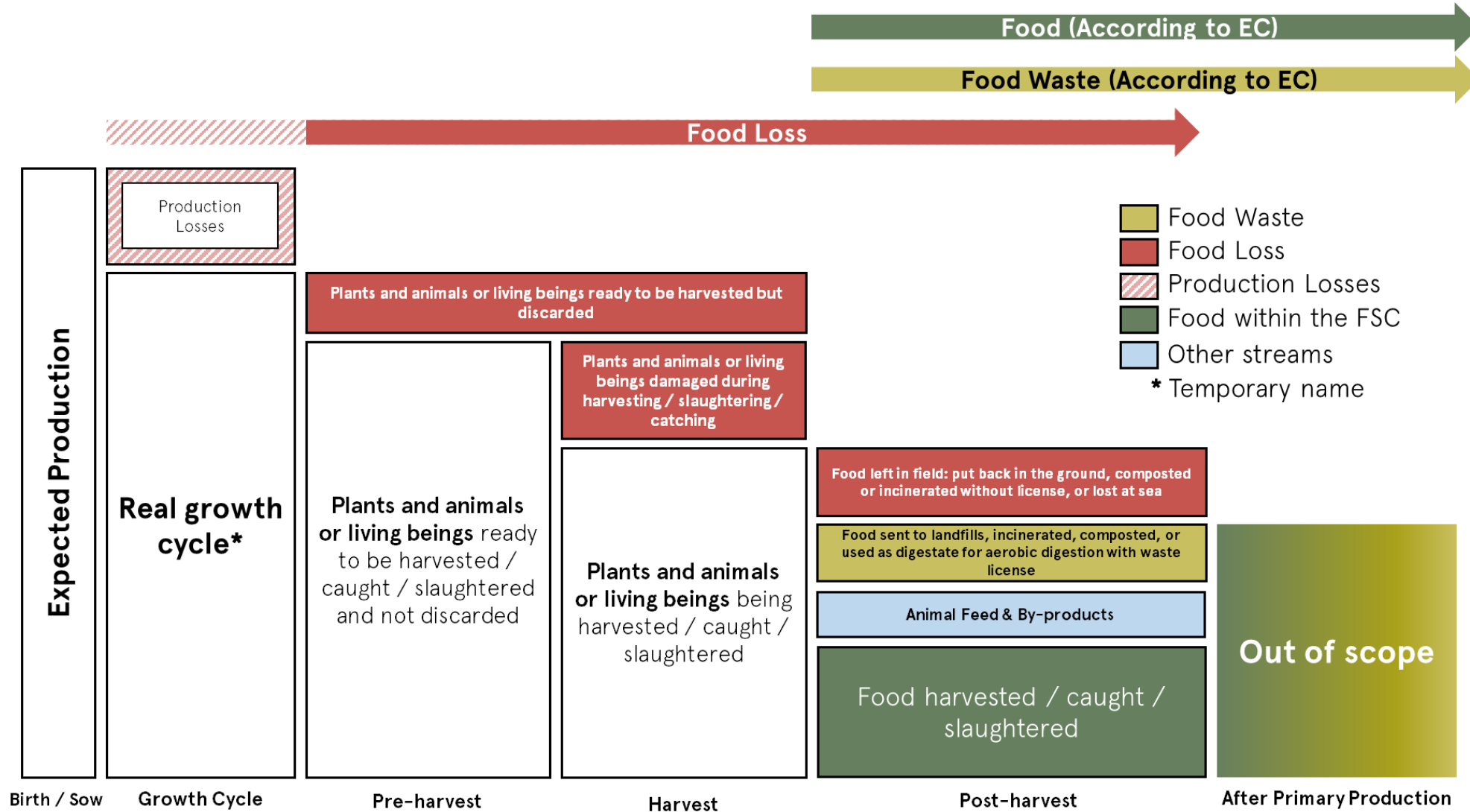




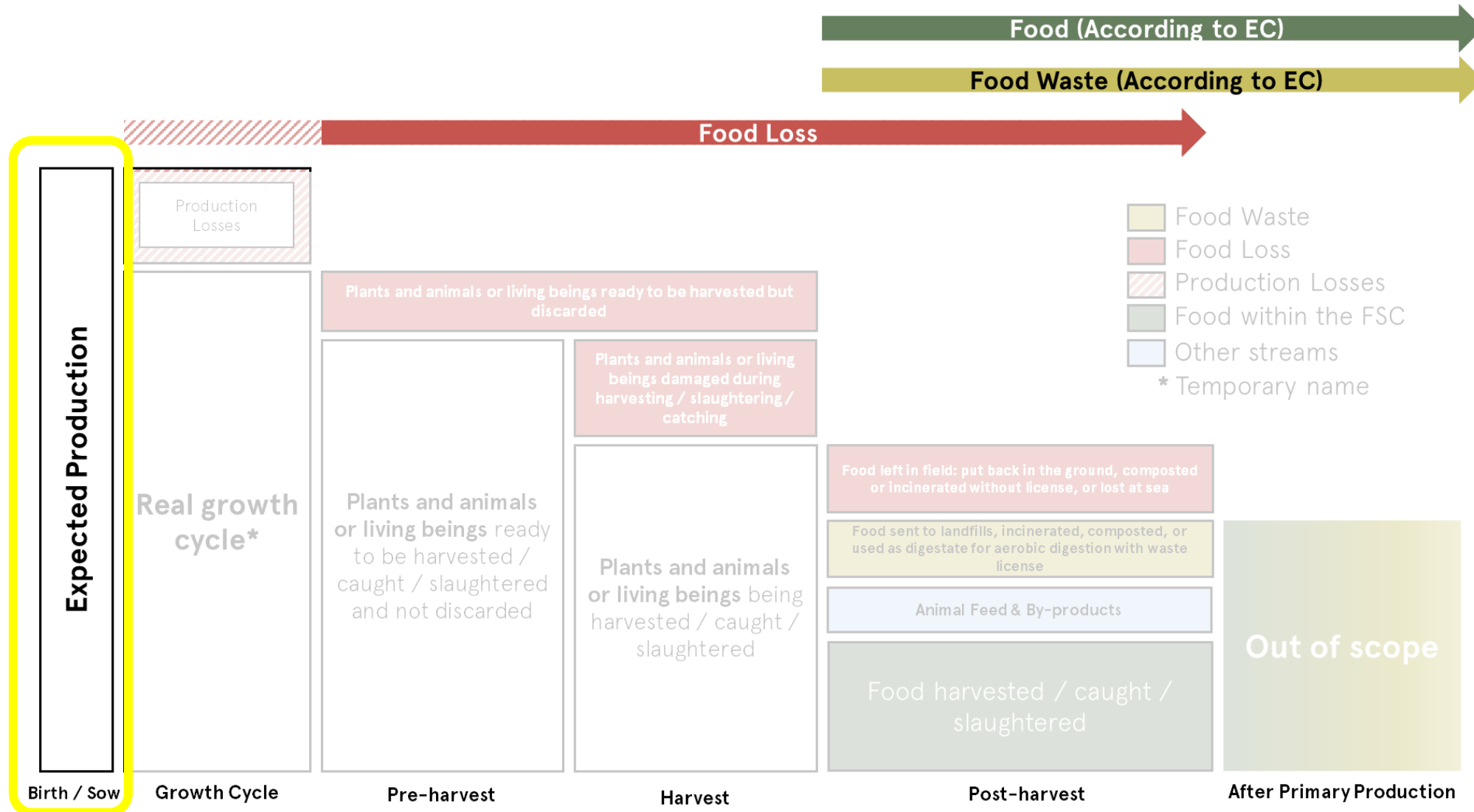
# FL Definitional Framework



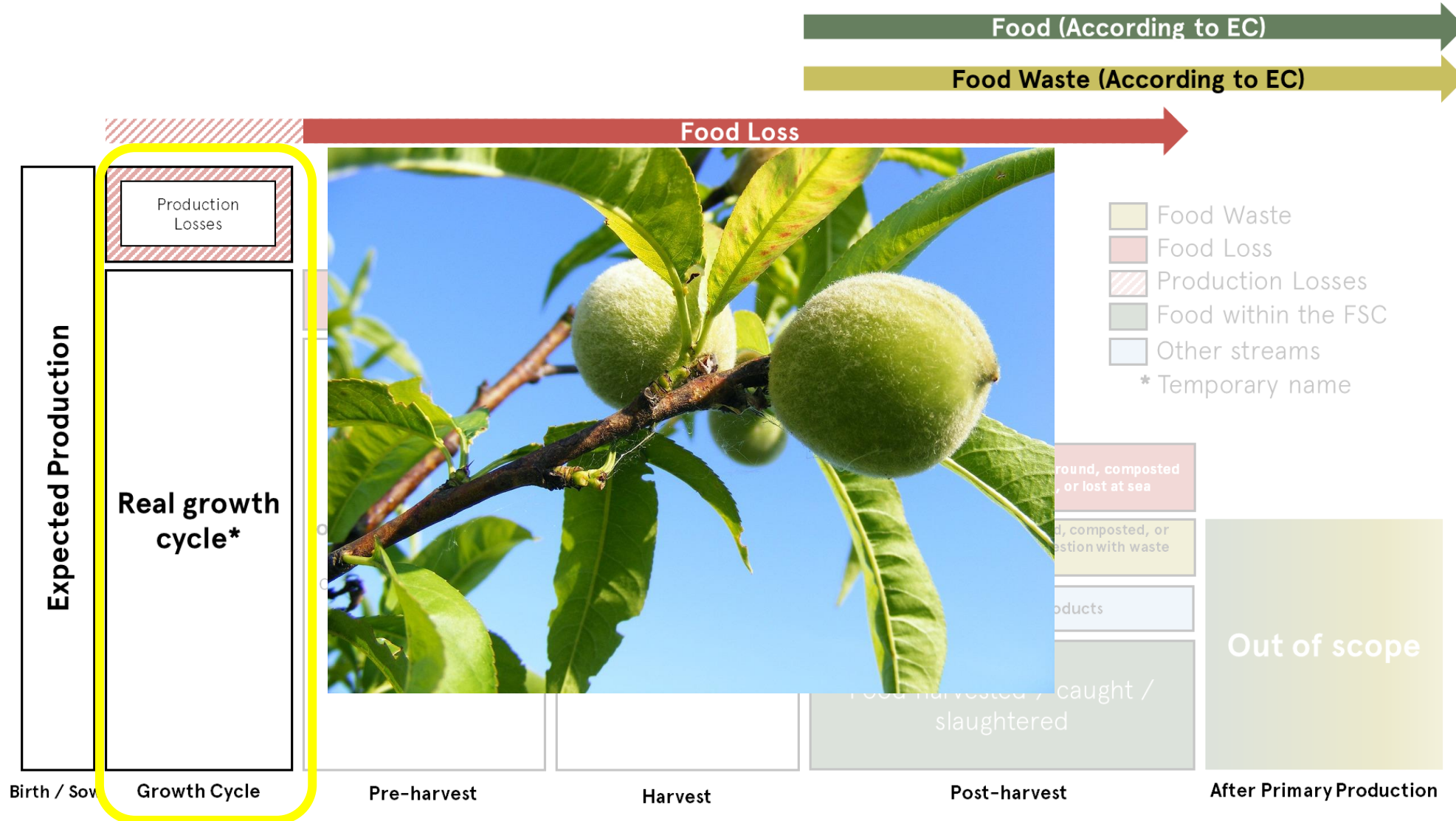
# FL Definitional Framework



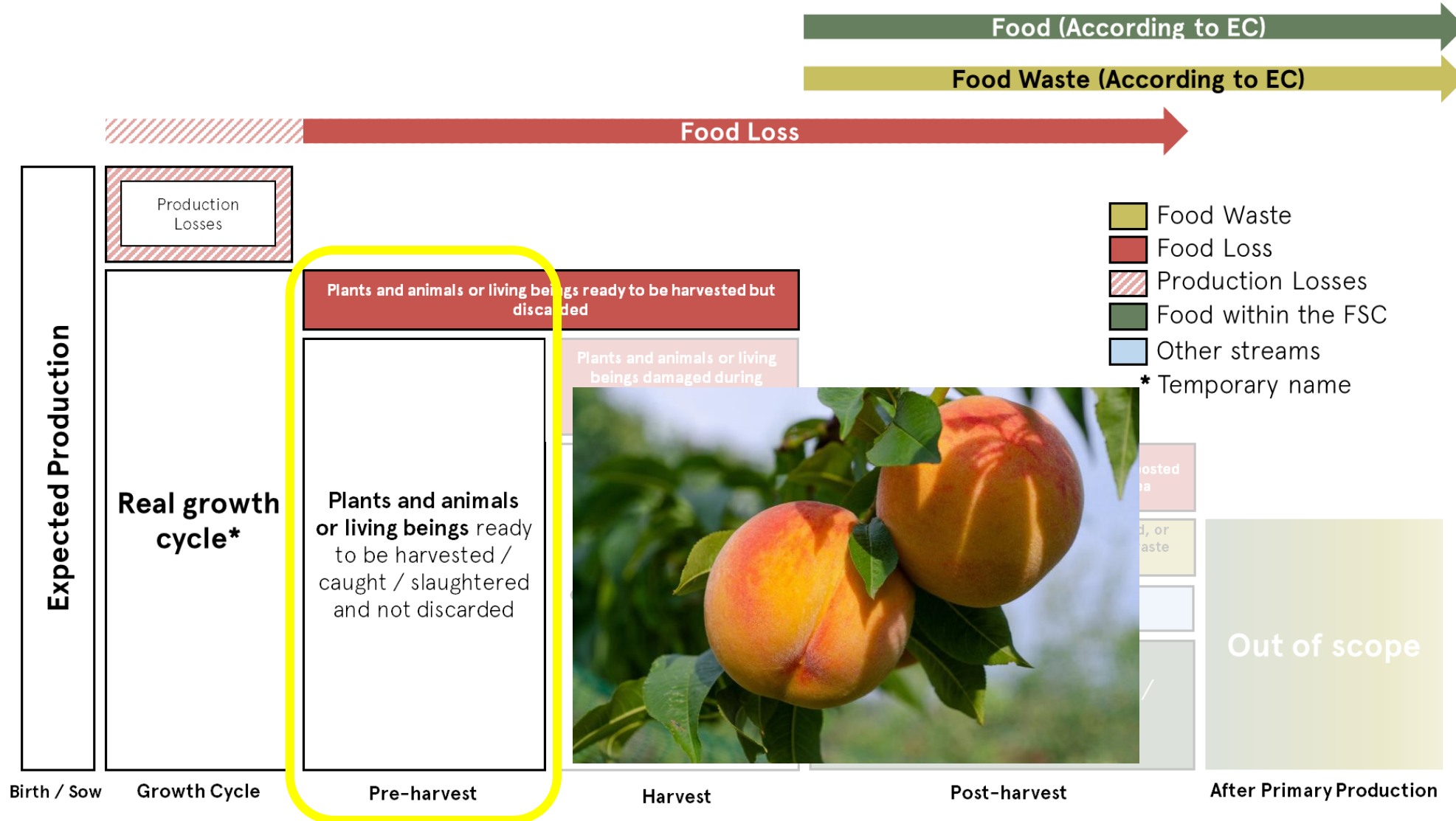
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# FL Definitional Framework



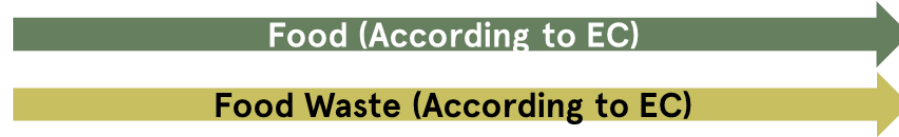
# FL Definitional Framework



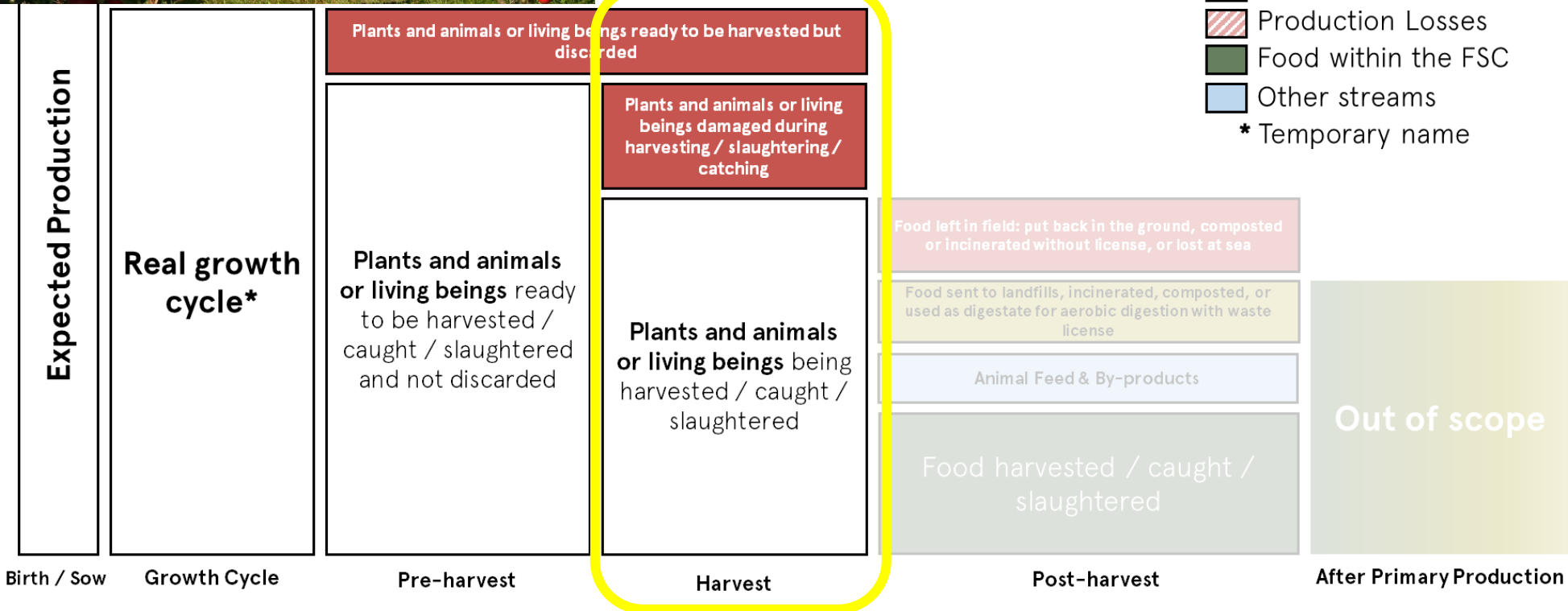




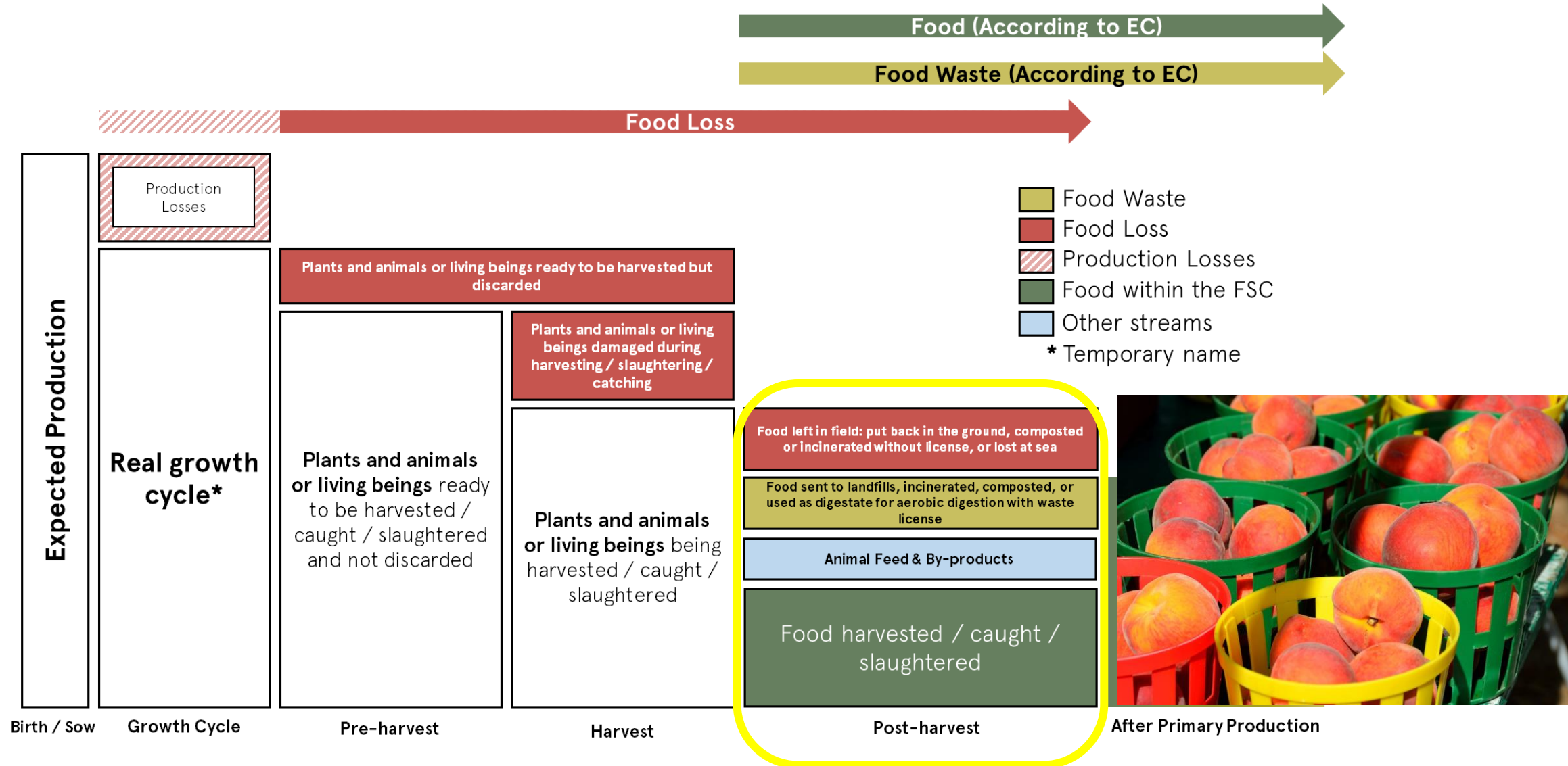
# Framework



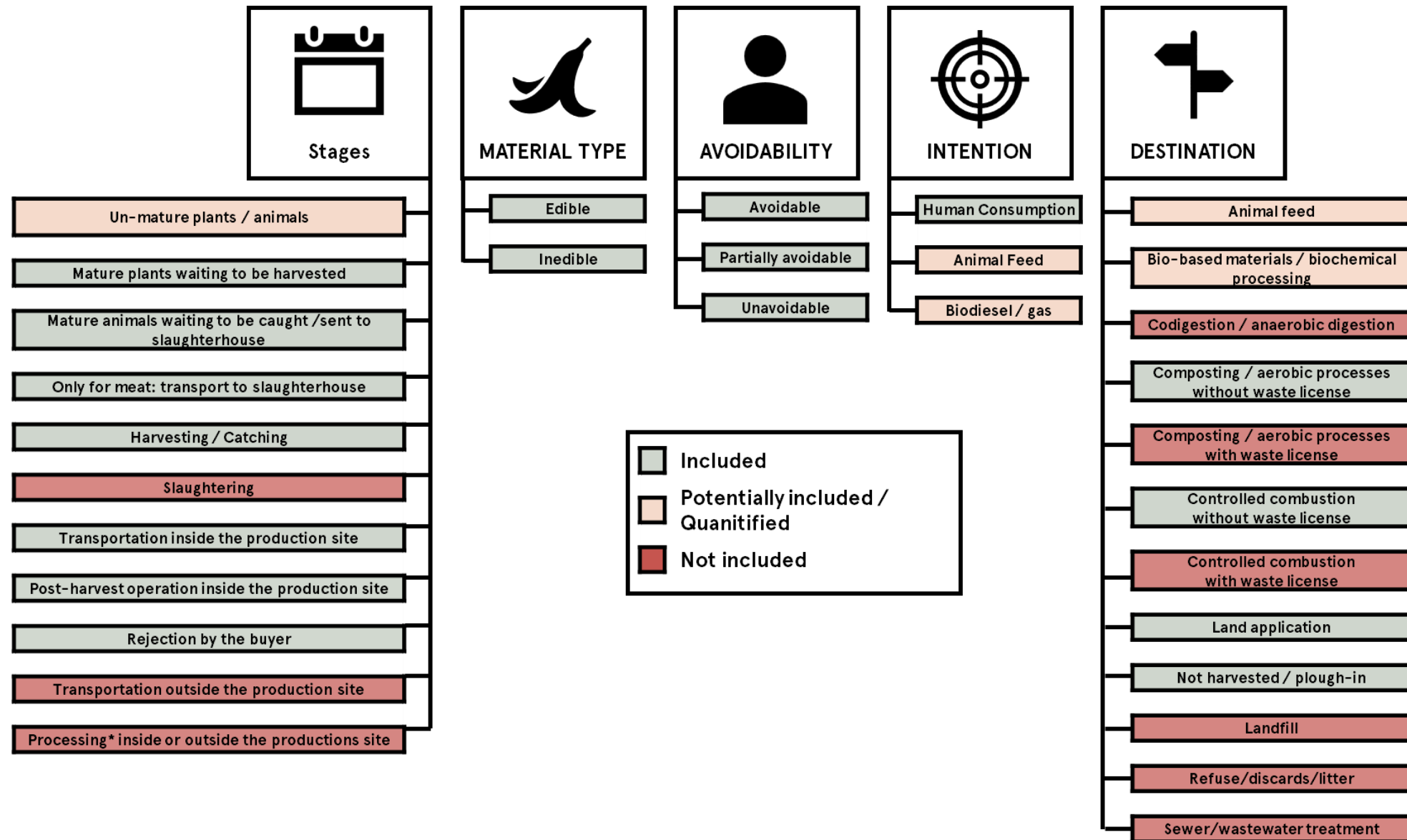
-  Food Waste
-  Food Loss
-  Production Losses
-  Food within the FSC
-  Other streams
- \* Temporary name



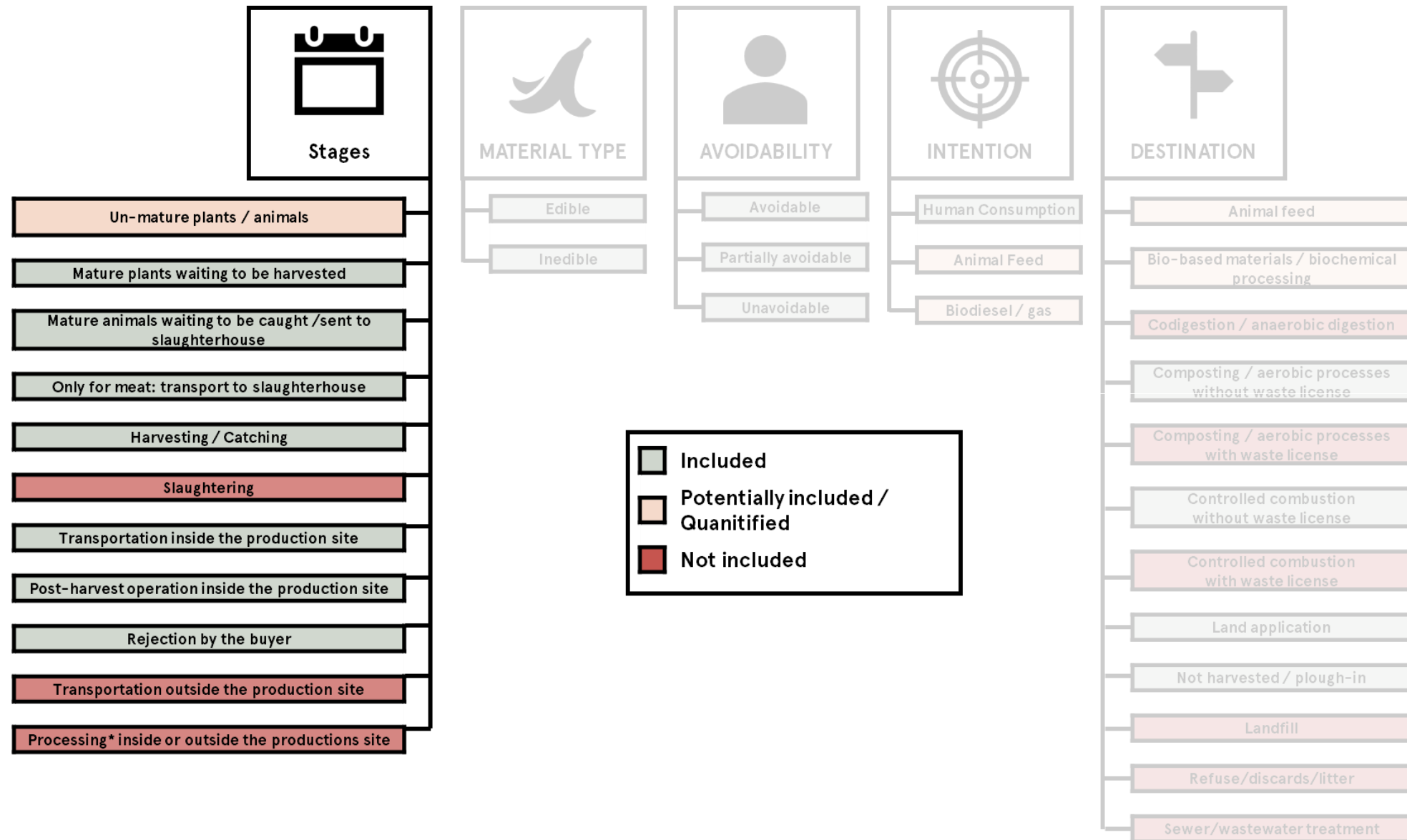
# FL Definitional Framework



# FL Definitional Framework



# FL Definitional Framework



# FL Definitional Framework

## Processing:

Processing does not include activities such as sorting or basic packaging that might be necessary for storage. At this point we consider processing as an **activity that substantially alters the weight or the shape of the food**. Keep in mind that this is only a provisional definition.

- Mature plants waiting to be harvested
- Mature animals waiting to be caught /sent to slaughterhouse
- Only for meat: transport to slaughterhouse
- Harvesting / Catching
- Slaughtering
- Transportation inside the production site
- Post-harvest operation inside the production site
- Rejection by the buyer
- Transportation outside the production site
- Processing\* inside or outside the productions site

- Inedible
- Partially avoidable
- Unavoidable

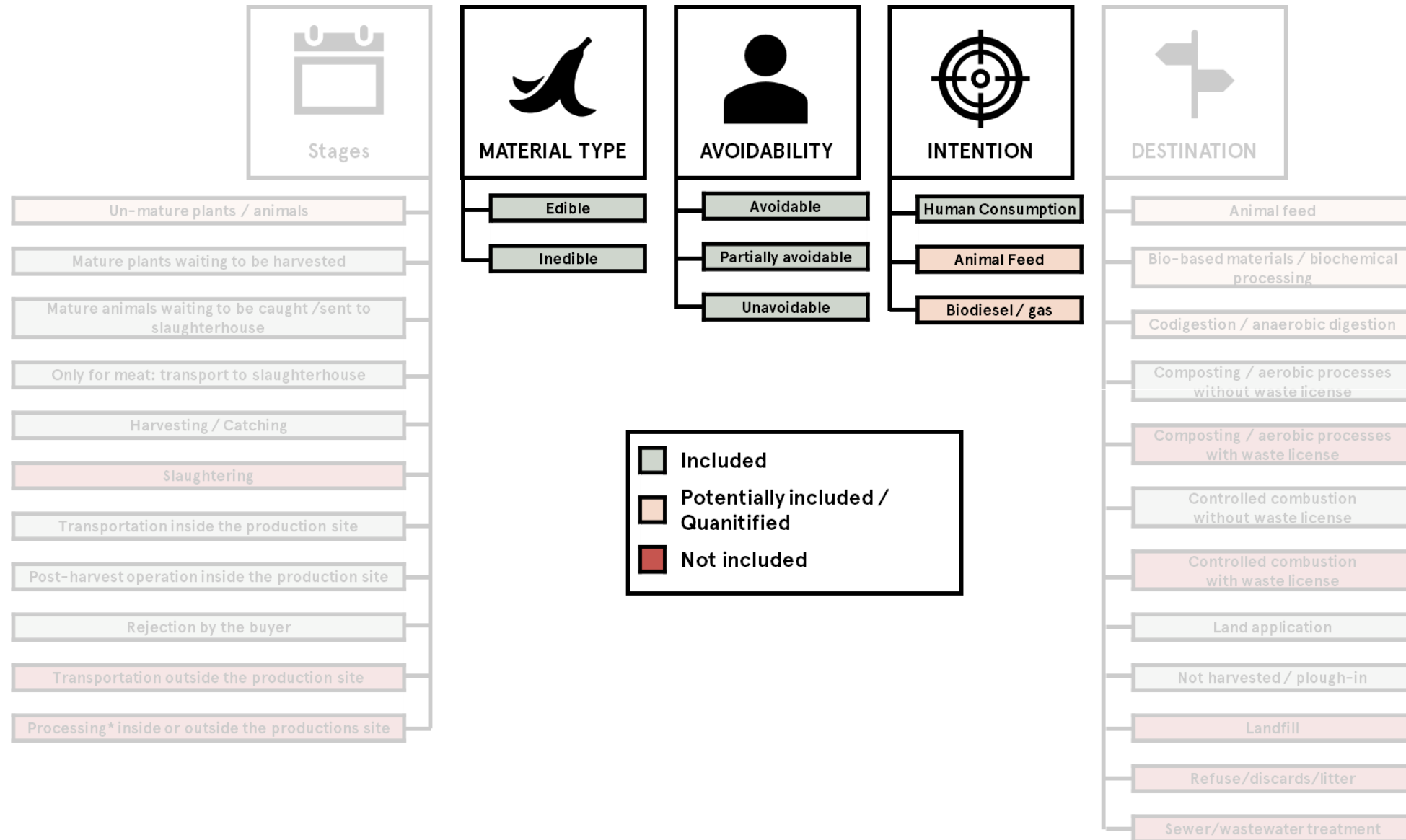
- INTENTION**
- Human Consumption
  - Animal Feed
  - Biodiesel/ gas

- DESTINATION**
- Animal feed
  - Bio-based materials / biochemical processing
  - Codigestion / anaerobic digestion
  - Composting / aerobic processes without waste license
  - Composting / aerobic processes with waste license
  - Controlled combustion without waste license
  - Controlled combustion with waste license
  - Land application
  - Not harvested / plough-in
  - Landfill
  - Refuse/discards/litter
  - Sewer/wastewater treatment

Legend:

- Included
- Potentially included / Quantified
- Not included

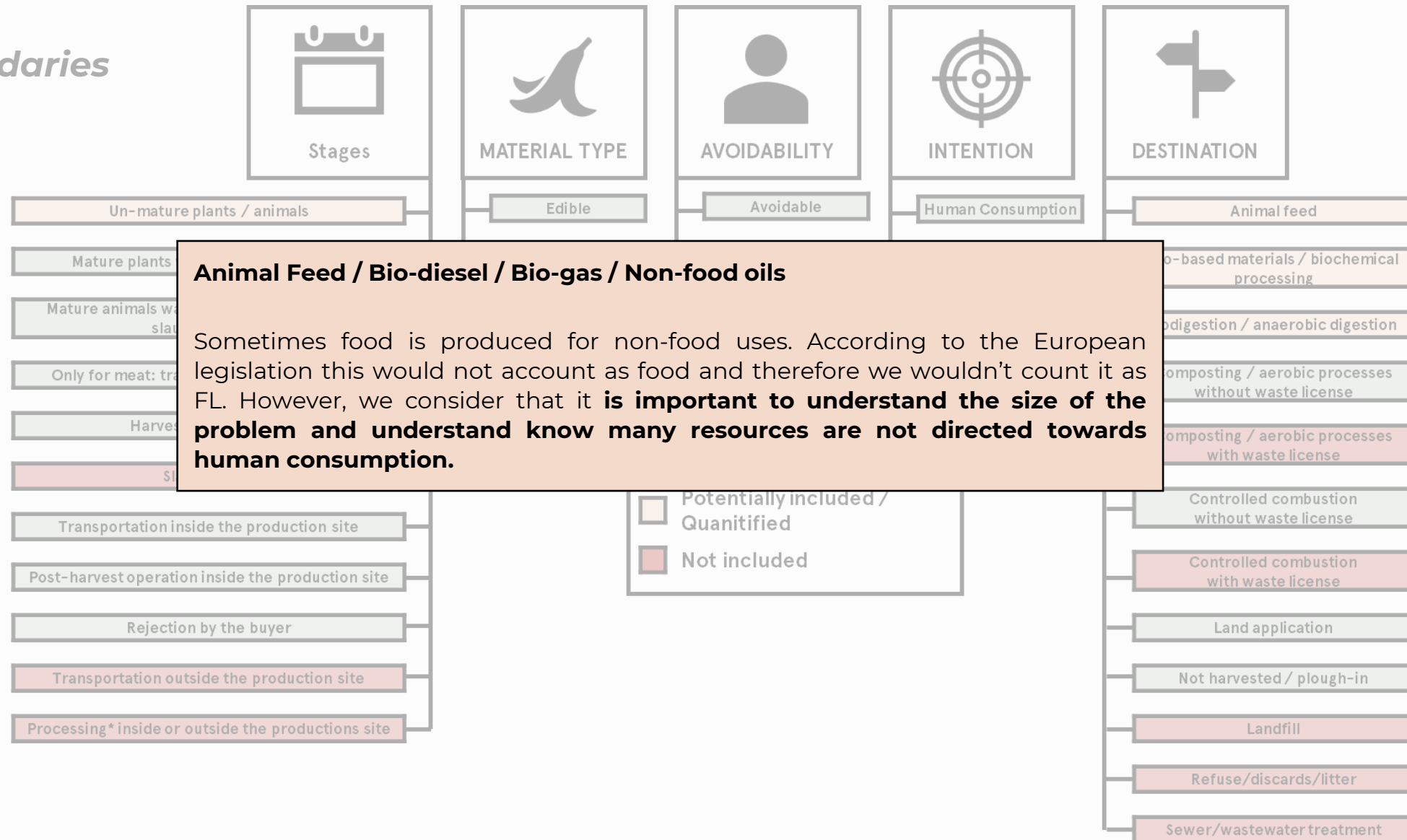
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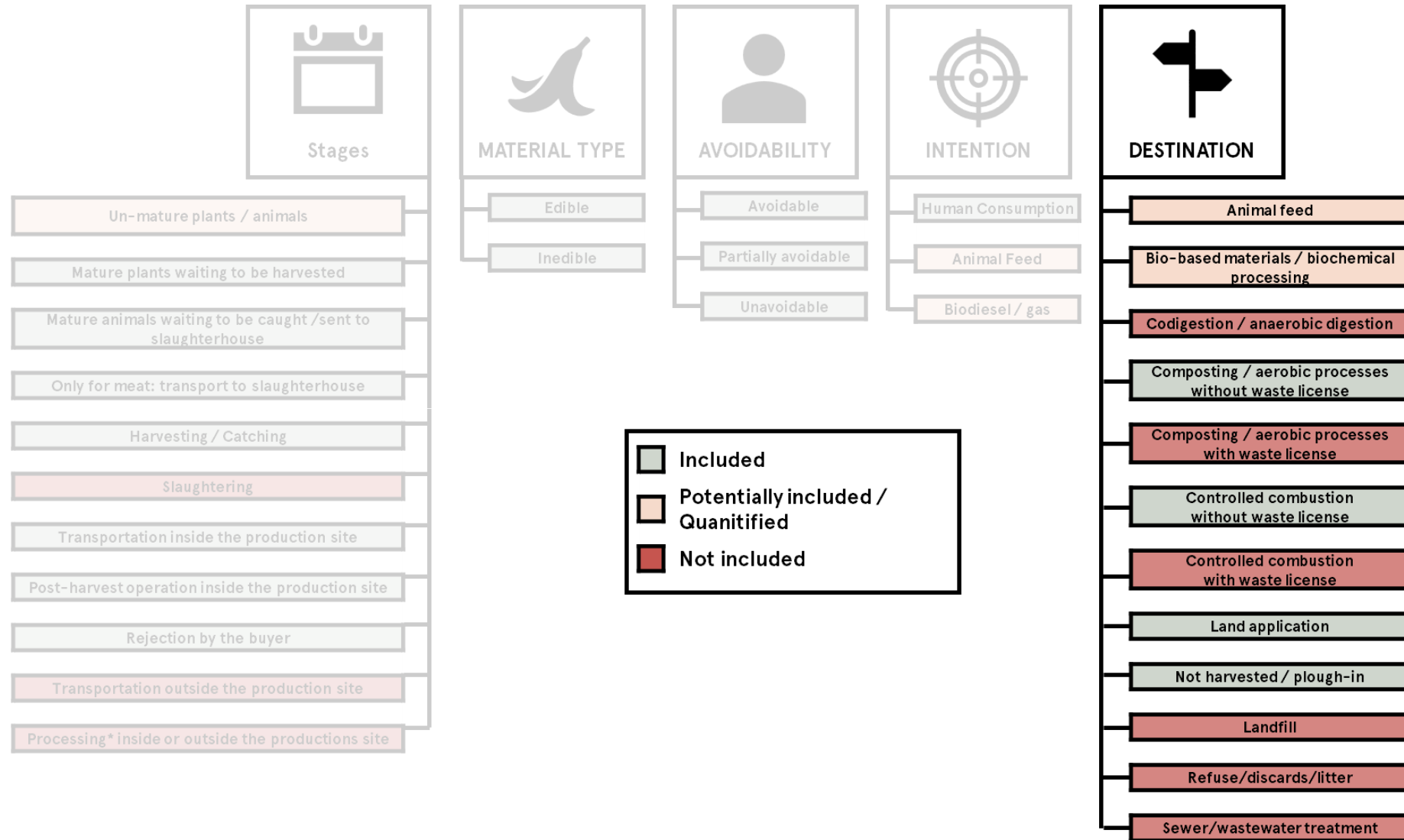


# FL Definitional Framework

## Boundaries

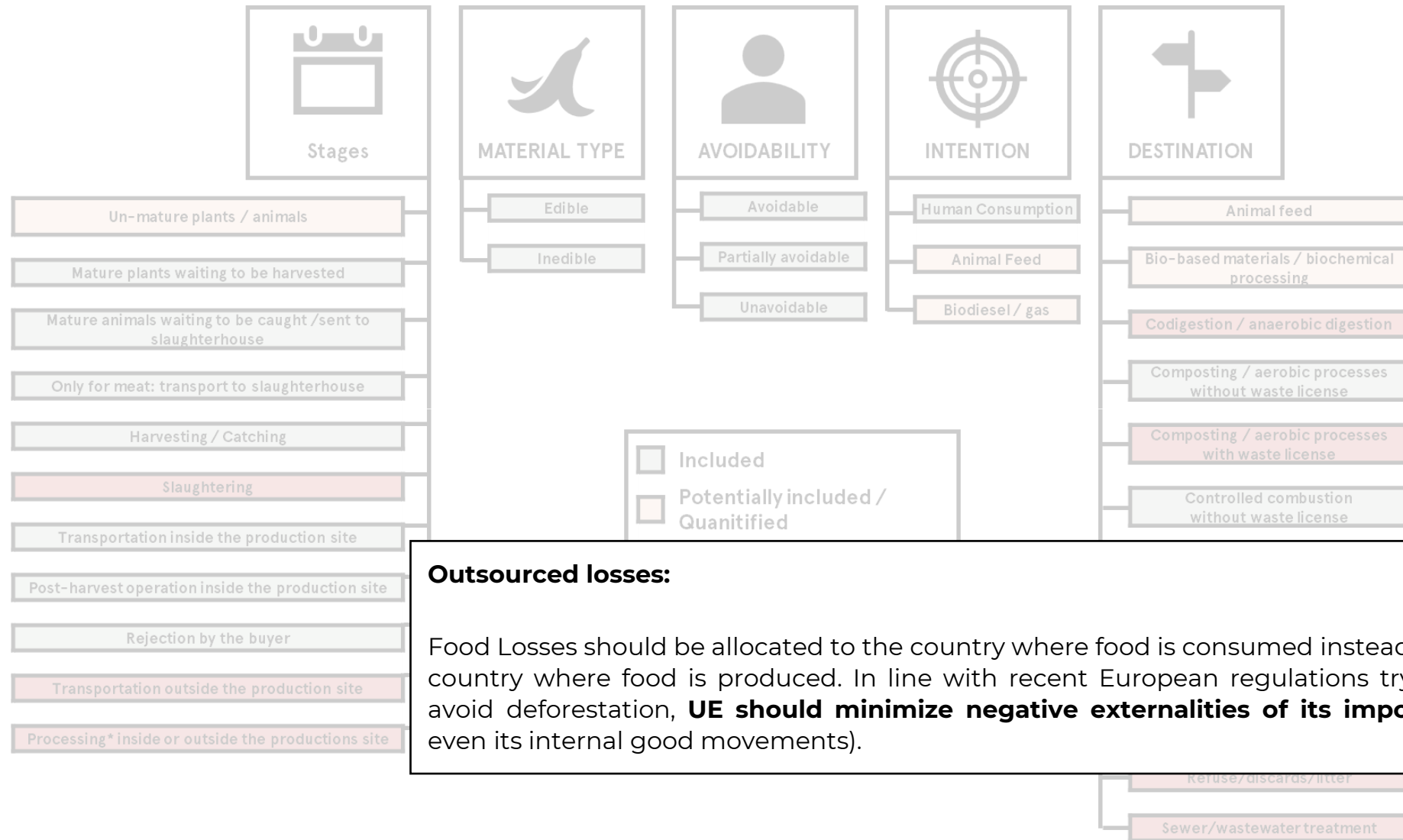


# FL Definitional Framework





# FL Definitional Framework



# FL Definitional Framework



## ***Commodity sectors – specific definitions***

- Fruits and vegetables
- Cereals and Pulses
- Roots, tubers and Oilseeds

### ***Plant-based food groups***

- Meat and Animal Products

### ***Animal-based food group***

- Fisheries and Aquaculture

### ***Fish food group***

- Wild food group

### ***Wild food group***



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# FL Definitional Framework



## ***Plant-based food group***

- Fruits and vegetables
- Cereals and Pulses
- Roots, tubers and Oilseeds

**CRIF (Crops that remain in the field) = Pre-harvest FL + Harvest FL**

**FL = CRIF + Post-harvest FL**

### **Warning:**

It is important to consider that crops ready to be harvested are not always at their optimal point of maturity. Lots of climacteric fruits and vegetables, for example, are harvested before maturity to complete the process during transportation.

Therefore, the **intention to harvest** is the key factor.



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# FL Definitional Framework



## ***Animal-based food group***

- Meat (only pre-harvest)

**Meat FL = Deaths of animal ready to be slaughter prior to slaughter.**

- Animal products: milk (no pre-harvest)

**Milk FL = Post-harvest FL**

### **Post-harvest Milk FL:**

- Milk produced that does not reach the processor
  - milk rejected by the farmer due to antibiotic contamination,
  - milk thrown away due to problems in conservation, and
  - milk rejected by the processor.



# FL Definitional Framework



## ***Fish food group***

- Aquaculture

**Aquaculture FL = Pre-harvest FL + Fish left in the boat (FLIB)**

### **Pre-harvest Fish FL:**

- Fish discarded due to diseases
- Fish escaping the farm

- Fisheries (no pre-harvest)

**Fisheries FL = FLIB**

- By-catch



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# FL Definitional Framework



## ***Fish food group***

- Aquaculture

$$\text{Aquaculture FL} = \text{Pre-harvest FL} + \text{FLIB}$$

### **Pre-harvest Fish FL:**

- Fish discarded due to diseases
- Fish escaping the farm

- Fisheries (no pre-harvest)

$$\text{Fisheries FL} = \text{FLIB}$$

FLIB (Fish

#### **Processing:**

- Gutting on-board -> Not processing
- Filleting -> Processing

In the mediterranean there is no processing on-board



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# FL Definitional Framework



## ***Wild food***

Food obtained from:

- Wild fishing (apart from fisheries).
- Mushroom hunting.
- Meat coming from hunting activities.
- Wild plants.
- Other sources

**Wild Food FL = Harvest + Post-harvest FL**

- Food spoiled during harvesting (hunting techniques)
- Food spoiled during post-harvesting (inadequate conservation)

Distributed through informal markets

Future research necessary to understand the magnitude



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**3. Critical points (“Grey areas”) identified**





# FL Definitional Framework



## Critical points (“Grey areas”)

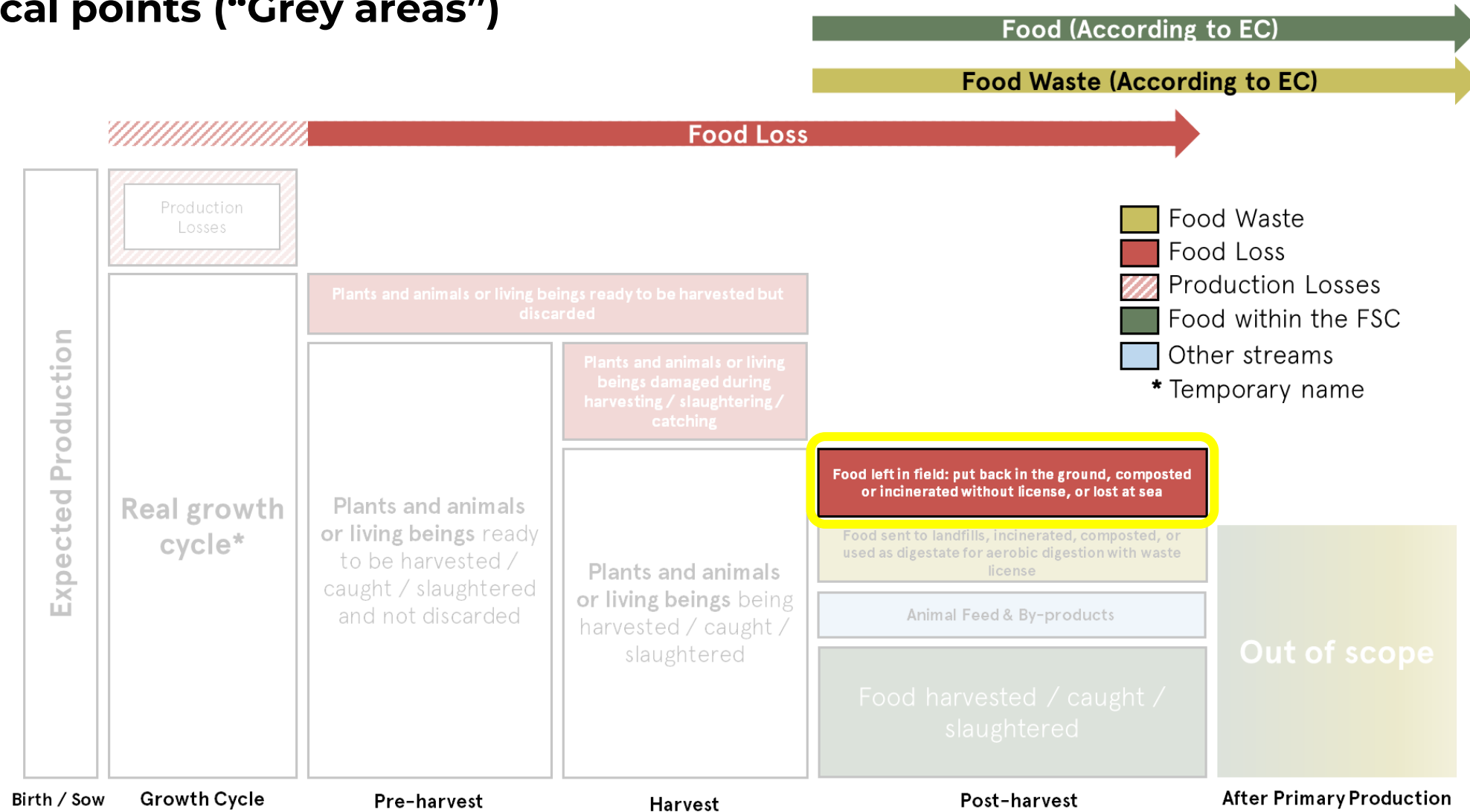
1. Post-harvest phase



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# FL Definitional Framework

## Critical points (“Grey areas”)



# FL Definitional Framework



## Critical points (“Grey areas”)

Post-harvest phase

- Put back on the ground: **Food loss**
- Lost in the sea: **Food loss**
- Feeding animals and by-products: **no FLW**
- Valorization (composted, incineration, etc): **depends.**



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# FL Definitional Framework



## Critical points (“Grey areas”)

Post-harvest phase

- Put back on the ground: **Food loss**
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- Valorization with waste license: go to waste statistics = **food waste**
- Valorization without waste license: **food losses/by-product**



EU Food waste concept: **statistically oriented.**

# FL Definitional Framework



## Critical points (“Grey areas”)

Post-harvest phase

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**Grey area**

- Valorization without waste license: **food losses/by-product**



EU Food waste concept: **statistically oriented.**

# FL Definitional Framework



## Critical points (“Grey areas”)

Post-harvest phase

- Put back on the ground: **Food loss** ✓
- Lost in the sea: **Food loss** ✓
- Feeding animals: no FLW

- Valorization (composted, incineration, etc.): depends.



**Grey area**

- Valorization with waste license: go to waste statistics = food waste
- Valorization without waste license: food losses/by-product



EU Food waste concept: **statistically oriented.**



# FL Definitional Framework



## Critical points (“Grey areas”)

1. Post-harvest phase
2. FLW from take back agreement



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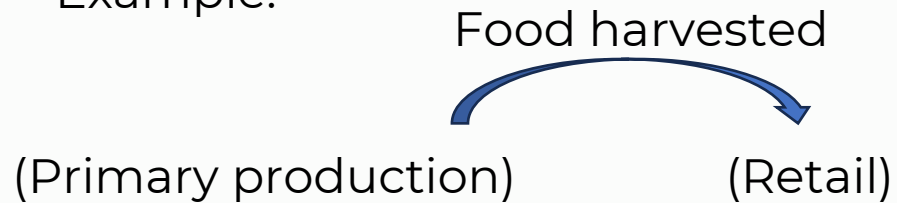
# FL Definitional Framework



## Critical points (“Grey areas”)

1. Post-harvest phase
2. FLW from take back agreement

Example:



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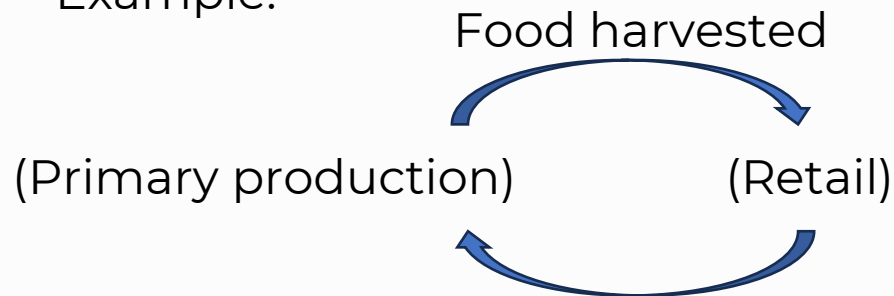
# FL Definitional Framework



## Critical points (“Grey areas”)

1. Post-harvest phase
2. FLW from take back agreement

Example:



Food harvested coming back to the production site



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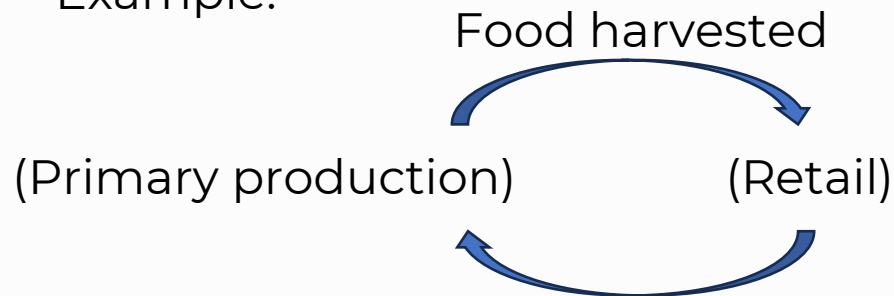
# FL Definitional Framework



## Critical points (“Grey areas”)

1. Post-harvest phase
2. FLW from take back agreement

Example:



Food harvested coming back to the production site 

**The rules mentioned in post-harvest are applied**



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# FL Definitional Framework



## Critical points (“Grey areas”)

Post-harvest phase

- Put back on the ground: **Food loss**
- Lost in the sea: **Food loss**
- Feeding animals or by-product: **no FLW**
- Valorization (composted, incineration, etc.): depends.



- Valorization with waste license: go to waste statistics = **food waste**

Grey area

- Valorization without waste license: **food losses/by-product**



EU Food waste concept: **statistically oriented.**

# FL Definitional Framework



## Critical points (“Grey areas”)

1. Post-harvest phase
2. FLW from take back agreement
3. Contaminated food



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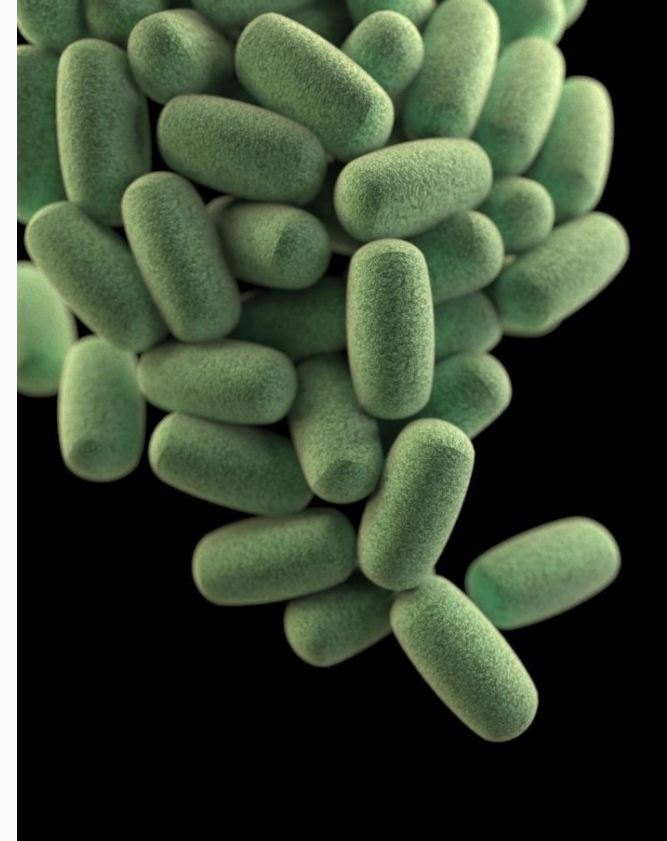


# FL Definitional Framework



## Critical points (“Grey areas”)

1. Post-harvest phase
2. FLW from take back agreement
3. Contaminated food




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# FL Definitional Framework



## Critical points (“Grey areas”)

1. Post-harvest phase
2. FLW from take back agreement
3. Contaminated food  **Depending on the final destination**  
**(The rules mentioned in post-harvest are applied)**



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# FL Definitional Framework



## Critical points (“Grey areas”)

1. Post-harvest phase
2. FLW from take back agreement
3. Contaminated food
4. Ending point of food losses for animal products



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# FL Definitional Framework



## Critical points (“Grey areas”)

1. Post-harvest phase
2. FLW from take back agreement
3. Contaminated food
4. Ending point of food losses for animal products

Starting point

ready to be slaughtered



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# FL Definitional Framework



## Critical points (“Grey areas”)

1. Post-harvest phase
2. FLW from take back agreement
3. Contaminated food
4. Ending point of food losses for animal products



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# FL Definitional Framework

## Critical points (“Grey areas”)

1. Post-harvest phase
2. FLW from take back agreement
3. Contaminated food
4. Ending point of food losses for animal products





## **4. Key contributions/reflections from the external experts**

# Key contributions/reflections



1. Food losses in post-harvest phase. Food recovered (composted, incinerated...) without waste license **TOP 1 in grey area.**



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# Key contributions/reflections



Post-harvest phase

- Put back on the ground: Food loss
- Lost in the sea: Food loss
- Feeding animals or by products: no FLW
- Valorization (composted, incineration, etc.): depends.



- Valorization with waste license: go to waste statistics = food waste

**Grey area**

- Valorization without waste license: food losses/by-product



EU Food waste concept: **statistically oriented.**

# Key contributions/reflections



Expert 1: *"Food waste destination"*

Expert 2: *"Should be considered food loss or waste, and no by-products"*

Expert 3: *"I would consider it both a by-product and food loss"*

Expert 4: *"This doesn't make sense to me... By-products are in the food production chain, not compost/incineration"*

**Grey area**

- Valorization without waste license: **food losses/by-product**



EU Food waste concept: **statistically oriented.**

# Key contributions/reflections



Food loss



**Grey area**

- Valorization without waste license: **food losses/by-product**

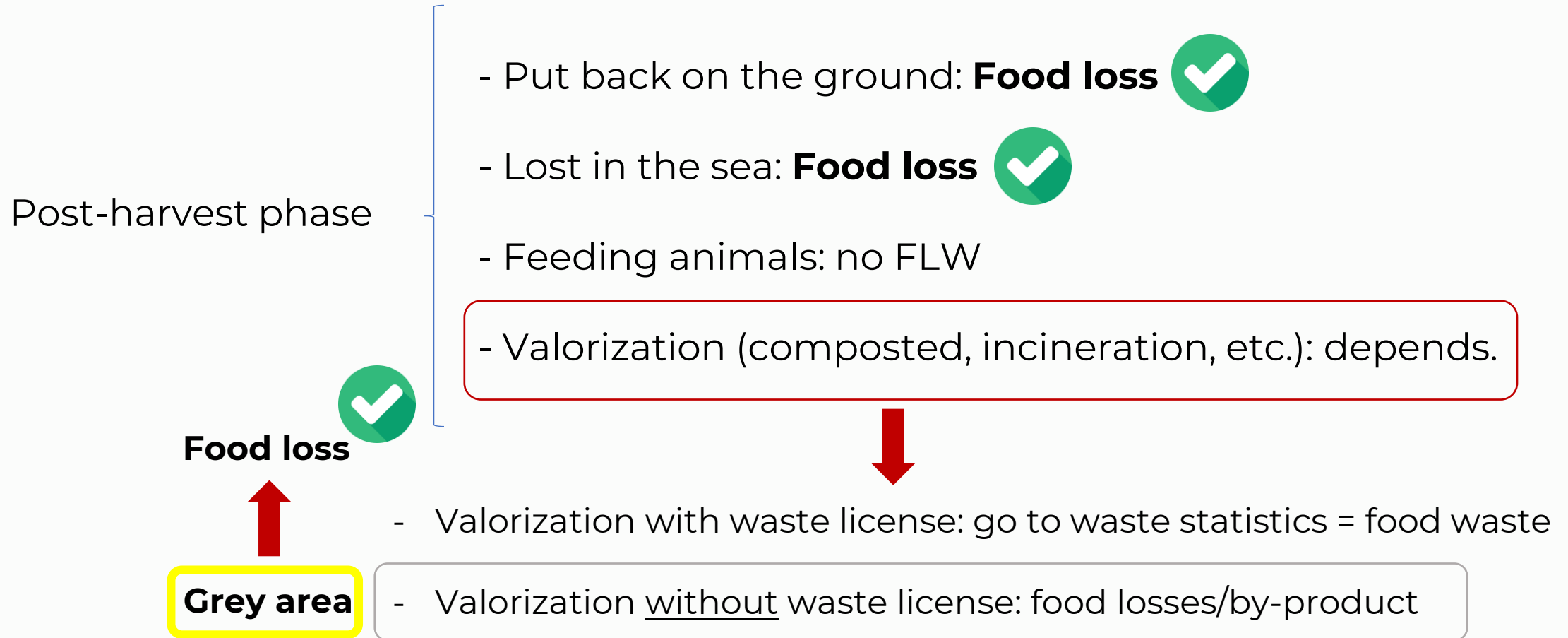


EU Food waste concept: *statistically oriented*.

# FL Definitional Framework



## Critical points (“Grey areas”)



EU Food waste concept: **statistically oriented.**

# Key contributions/reflections



1. Food losses in post-harvest phase. Food recovered (composted, incinerated...) without waste license **TOP 1 in grey area.**
2. “Food paradox” in meat products
  - Before slaughtering: food loss
  - During slaughtering: food waste



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# Key contributions/reflections



1. Food losses in post-harvest phase. Food recovered (composted, incinerated...) without waste license **TOP 1 in grey area.**
2. “Food paradox” in meat products
  - Before slaughtering: food loss
  - During slaughtering: food waste

**BUT**

Slaughtered animals are first **defined as food after post-mortem check** according the EU food legislation



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# Key contributions/reflections



1. Food losses in post-harvest phase. Food recovered (composted, incinerated...) without waste license **TOP 1 in grey area.**
2. “Food paradox” in meat products

- Before slaughtering: no food and no waste **Food losses**
- During slaughtering and before post-mortem check: no food but **waste**
- After post-mortem check (not passing): no food but **waste**
- After post-mortem check (passing): **food (and waste)**

Slaughtered animals are first **defined as food after post-mortem check** according to the EU food legislation



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# Key contributions/reflections



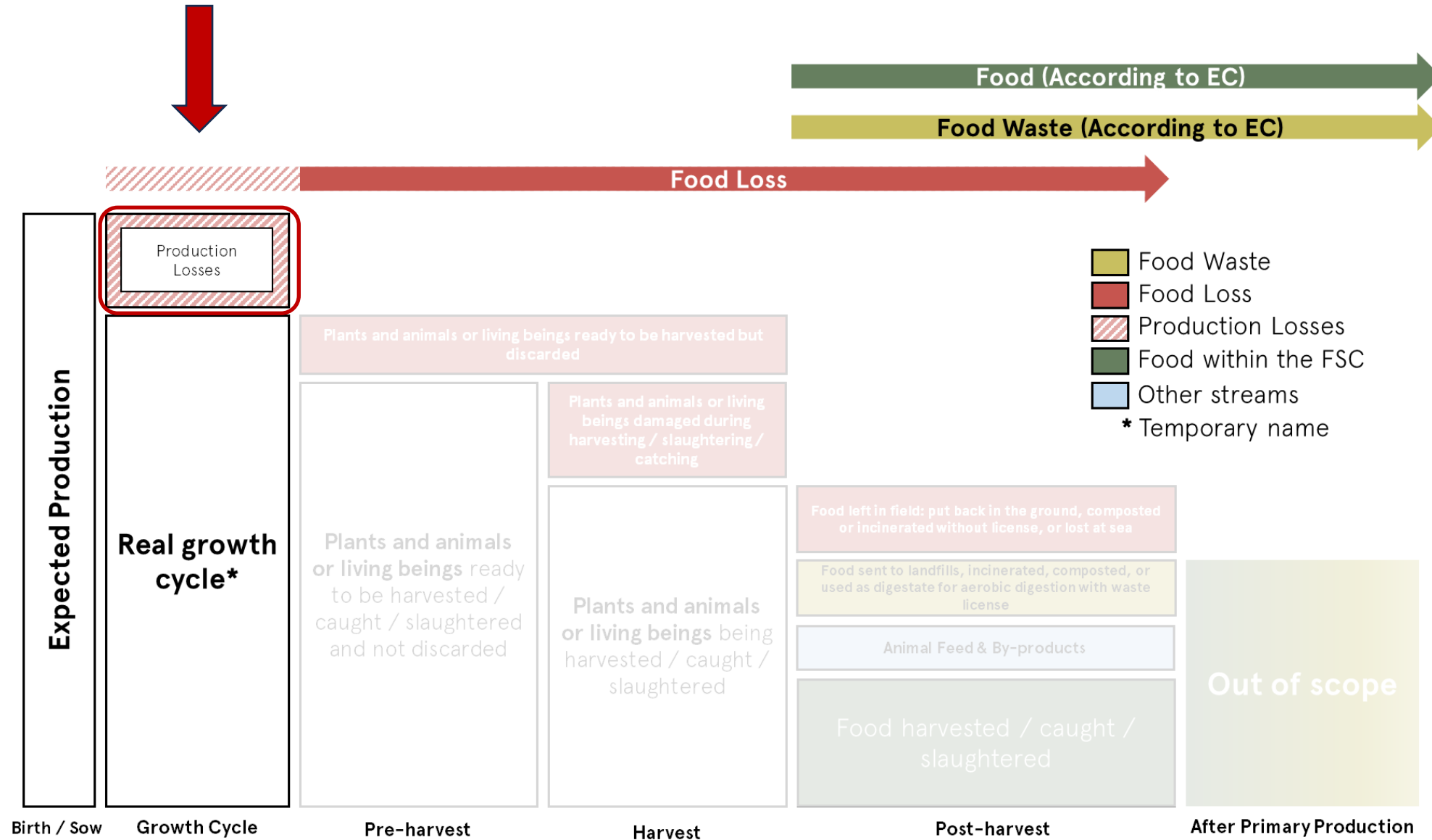
1. Food losses in post-harvest phase. Food recovered (composted, incinerated...) without waste license **TOP 1 in grey area.**
2. “Food paradox” in meat products
3. Importance of measuring “production losses”



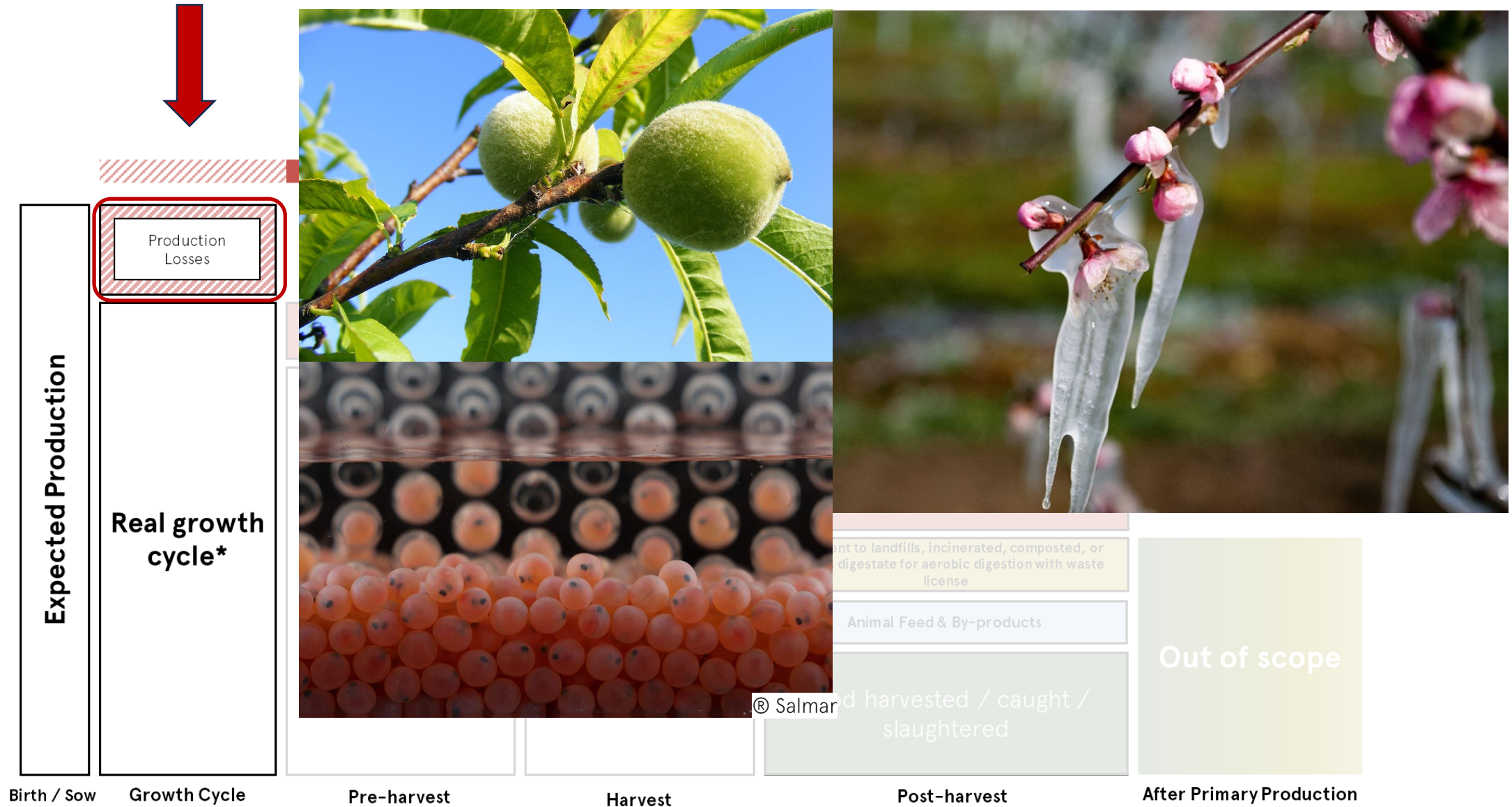
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# Key contributions/reflections



# Key contributions/reflections



# Key contributions/reflections



1. Food losses in post-harvest phase. Food recovered (composted, incinerated...) without waste license **TOP 1 in grey area.**
2. “Food paradox” in meat products
3. Importance of measuring “production losses”
4. General agreement about the starting point of food losses:



“ready for harvest/slaughtering/caught”



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# Key contributions/reflections



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5. Necessity of clarifying FLW from take back agreement



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6. By-products debate: can be food losses or waste as well?



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# Key contributions/reflections



## **Commission Delegated Decision (EU) 2019/1597 of 3 May 2019:**

*“Food waste does not include losses at stages of the food supply chain where certain products have not yet become food as defined in Article 2 of Regulation (EC) No 178/2002, such as edible plants which have not been harvested. In addition, it does not include by-products from the production of food that fulfil the criteria set out in Article 5(1) of Directive 2008/98/EC, since such **by-products are not waste**”.*

6. By-products debate: can be food losses or waste as well?



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# Key contributions/reflections



## Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives

### By-product

A substance or object, resulting from a production process, the primary aim of which is not the production of that item, may be regarded as not being waste referred to in point (1) of Article 3 but as being a by-product only if **the following conditions are met:**

- (a) further use of the substance or object is certain;
- (b) the substance or object can be used directly without any further processing other than normal industrial practice;
- (c) the substance or object is produced as an integral part of a production process; and
- (d) further use is lawful, i.e. the substance or object fulfils all relevant product, environmental and health protection requirements for the specific use and will not lead to overall adverse environmental or human health impacts.



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# Key contributions/reflections



Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives

## By-product

By-products debate:

*Can be considered by-products in the primary production?*

Keeping the term "by-products" for **mostly industrial uses** would be clearer.

industrial practice,

(c) the substance or object is produced as an integral part of a production process; and

(d) further use is lawful, i.e. the substance or object fulfils all relevant product, environmental and health protection requirements for the specific use and will not lead to overall adverse environmental or human health impacts.



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# Key contributions/reflections



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5. Necessity of clarifying FLW from take back agreement
6. By-products debate: can be food losses or waste as well?
7. Reflections on the concept of food losses.



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# Key contributions/reflections



**Food concept** according to Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002



No Food



© WWF/Santi Donaire

Food



## Dynamic activity





# To be part of this adventure



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We will send you an email with the following documents:

- FOLOU Definitional Framework of Food Losses
- Quantification Manual of Food Losses



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Emails with comments

Attached documents with comments

Videocalls

Others



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Meeting 2 of 3

Unlocking Precision

## **Navigating Reliable Diagnoses for Measuring Food Losses in the Primary Sector of the Supply Chain**

Join our second meeting

DATE

April 11th, 2024

TIME

11.00h - 13.00h (GMT+1)



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# Thank you very much!



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