Life cycle assessment to support the green transition of food systems

Improving the environmental footprint method and fostering interoperability

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Addressing and assessing solutions across the value chain with LCA

From enhancing the representation of agricultural management practices…

… to the promotion of sustainable consumption

Check out the [JRC - Farming Practices Evidence library]

The Product Environmental Footprint method

The European Commission proposed the **Product Environmental Footprint** (PEF) as a common way of measuring environmental performance (EU 2021/2279):

1. Detailed **guidance** to support LCA comparison of products performance
2. A **level playing field** for operators
3. **Reliability** of environmental information

Transparency to support **decision-making** by businesses and consumers

Involvement of a broad panel of experts to identify **consensual solutions**

*Continuous update and **methodological developments***

Updating the Environmental Footprint methods

Next revisions by the end of 2026

Addressing the gaps in agricultural modelling

LCA methods, and the EF, should also discern differences within food product categories, being able to account for different farming systems

This constitutes an ongoing challenge, as there is no unified consensus in the LCA community in how to overcome it

This complex puzzle needs multidisciplinary and multifaceted solutions, which are both practical and based on sound scientific evidence

Upcoming new EF recommendations: how to improve agricultural modelling

Integrating Agricultural Working Group outputs
(pesticides, fertilisers and manure management)

Revision of weighting set

Revision of land use-related impact categories: scaling coefficients

Set the ground for more granular level approach

Agricultural Working Group: milestones

*The **aim** of the Agricultural Working Group was to identify, through the involvement of a broad **panel of experts**, consensual solutions for the methodological improvement of the EF on various key topics. All **milestones are published** and available on the JRC repository*

1. Modelling of pesticides

2

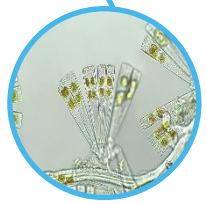
LCI modelling of fertilisers

Flows/direct emissions related to feed digestion and manure at farm

LCI modelling of water use

Biodiversity impacts

Primary data collection and quality requirements at farm level



Cross-cutting issues and additional points

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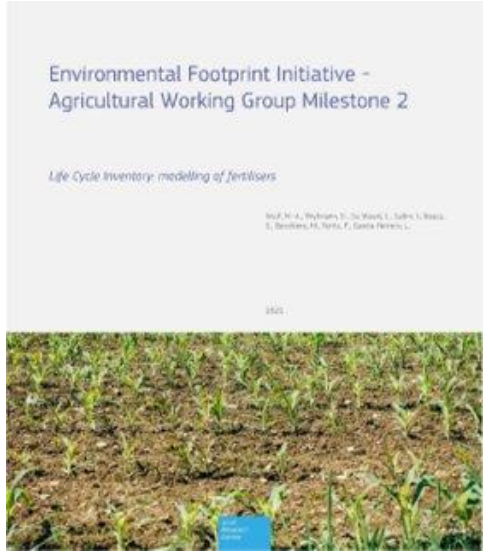

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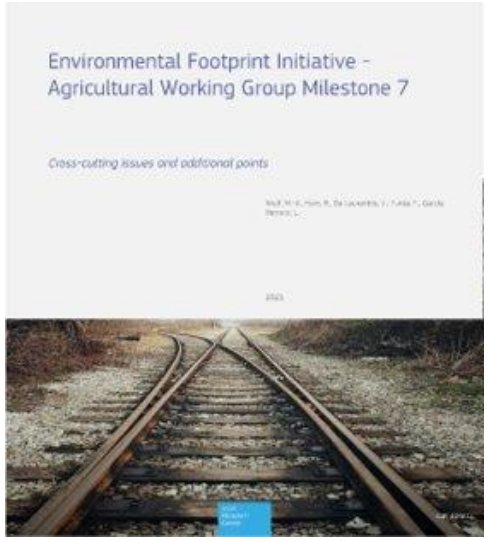

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Upcoming EF recommendations : Organic Farming

*To better **acknowledge organic farming systems** by proposing a solution that is both flexible and science-based, building towards **coherent methods** for **coherent policies***

	Agricultural policy	Product / organization policy
Level of application	Farm, farming system, sector	Whole life cycle of products
Methods for the analysis	Field trials, biophysical and economic modelling, econometric analysis	Life Cycle Assessment (LCA) approach, based on Environmental Footprint (EF) methods

Modelling organic farming in EF

The main aim is to provide a **sound interim solution** for LCA practitioners to address Organic Farming, supporting the use of the EF for **agri-food products,** focusing on two impact categories:

Land Use – soil

Land Use– biodiversity

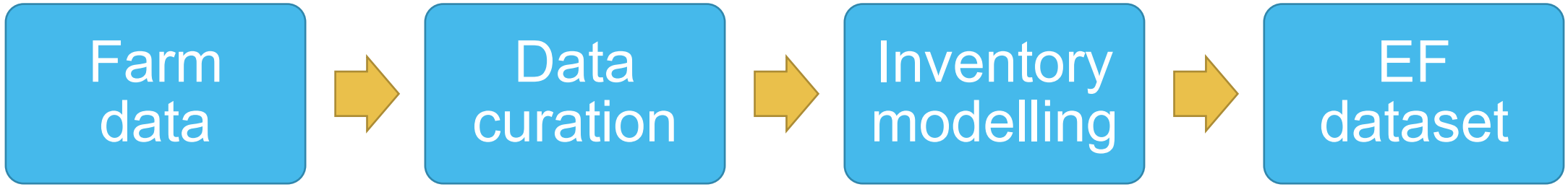
The devised solution foresees:

- Introducing **land use flows for organic farming**, associated to characterizationfactors (CFs) scaled to reflect some of the benefits of organic farming on soil andbiodiversity
- The scaling coefficients are derived from **meta-analyses** collected in the JRC Evidence Library and discounting the land use impact categories to reflect the benefits of Agricultural management practices

JRC - Farming Practices Evidence library

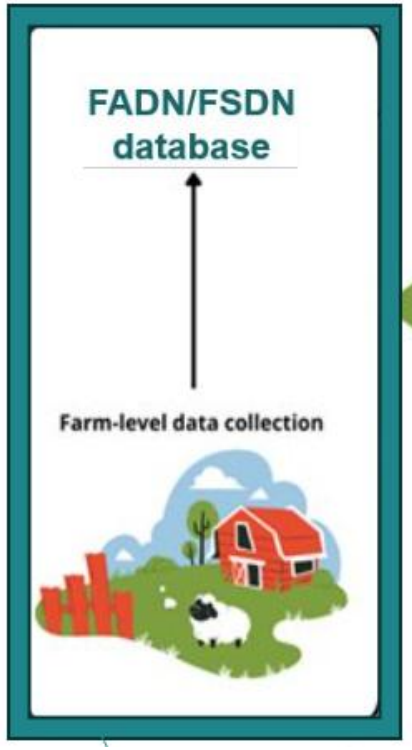
Promoting interoperability between agricultural and life cycle assessment data

- Key leverage to promote **simplification**, administrative **burden reduction**, **coherence** for EU policymaking
- From **Farm level** data to **Footprint**



Improving carbon and environmental footprint of agricultural products enabling interoperability

- Develop **life cycle datasets**, in line with the Environmental Footprint (EF) method, to assess the carbon and environmental footprint of agricultural products
- Develop **methods & protocols** to translate available data into (fully or partial) EF compliant data
- Set the stage for **improved environmental modelling**



Data curation

Methods and protocols

INTEROPERABILITY

Life cycle Inventories

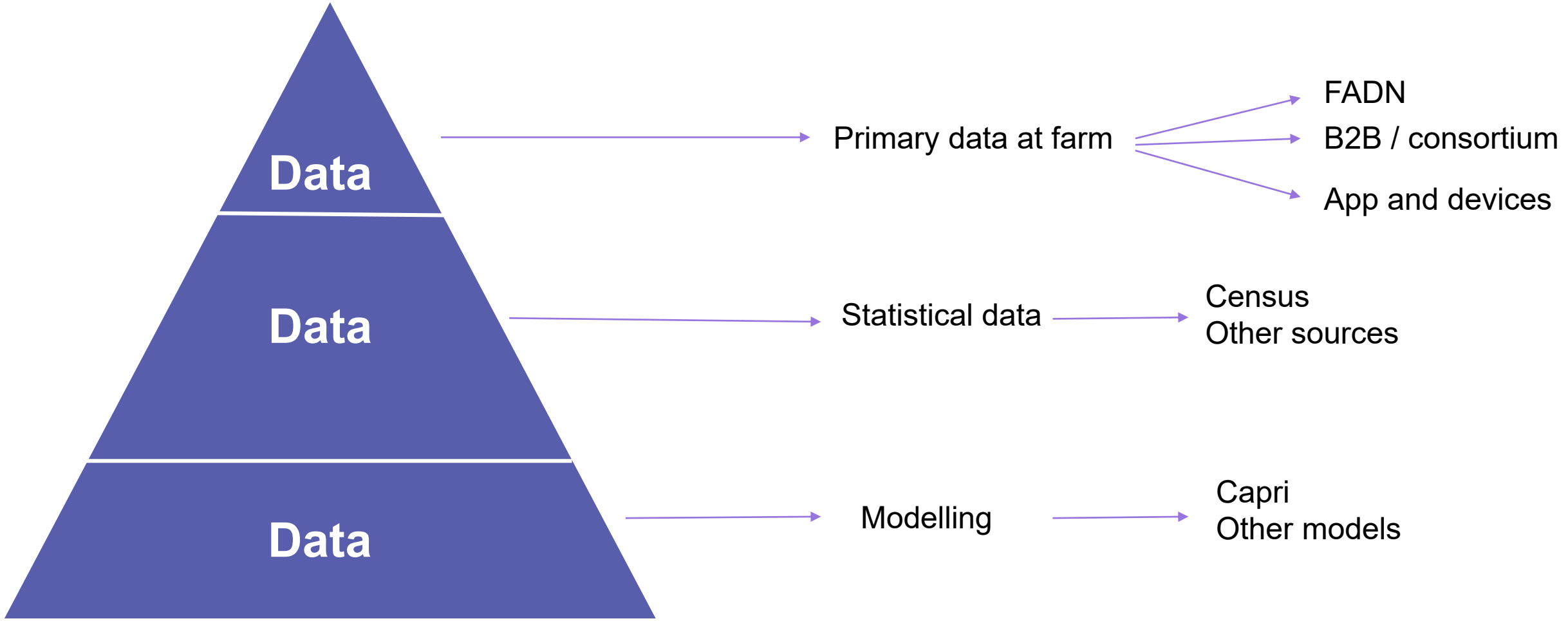
Processes: field preparation, cultivation, harvesting
Technical flows: pesticides, fertilisers, final products, etc

Input: resources used, like water, land, fossil fuels, minerals and metals
Output: emissions into air, soil and water

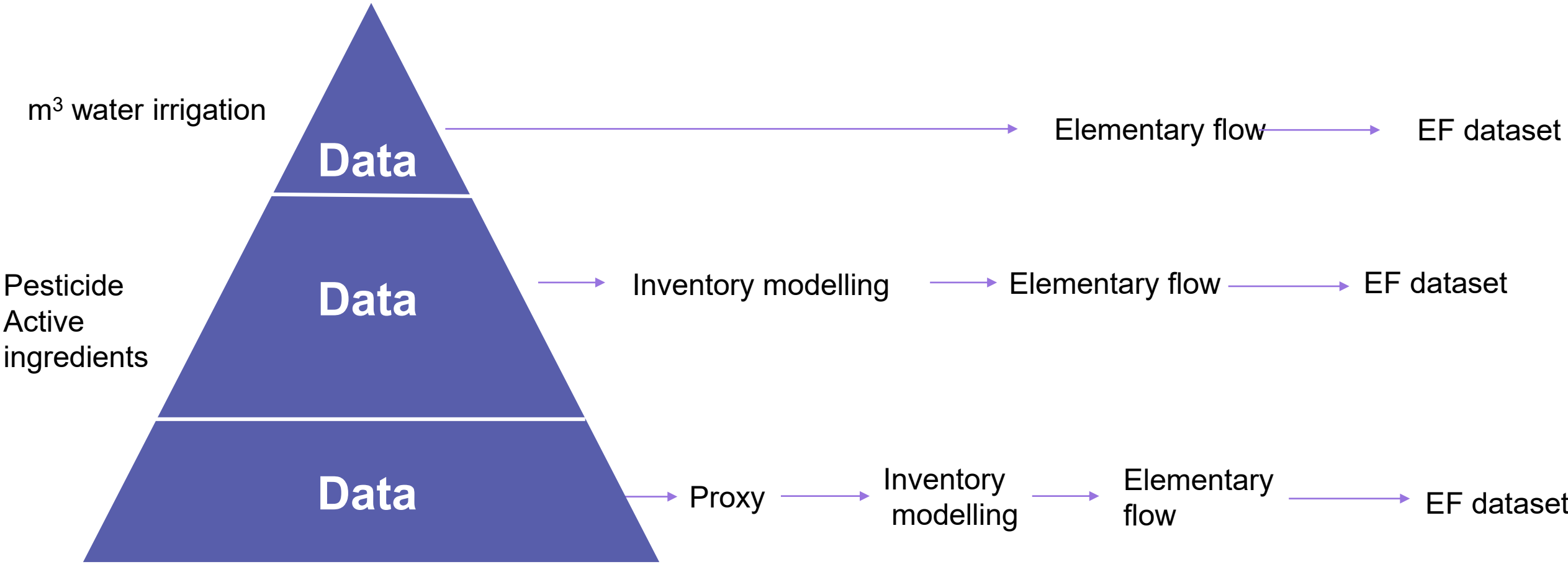
Life cycle Impact Assessment

Environmental impacts of a Unit of agricultural/food product for 16 impact categories

Hierarchy of data sources



Hierarchy of data sources and their possible use



Thank you