



Zefiro ® sugar and the handling of multifunctionality

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MINISTERO DELL'AMBIENTE
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Ministero dell'Ambiente e
della Tutela del Territorio e
del Mare
Programma nazionale per
la valutazione
dell'impronta ambientale



- Company selected for the project «*Analysis of the carbon footprint of fast-moving consumer goods, along the whole life cycle*», cofounded by the Italian Ministry of Environment (2012-2013)
- **Focus of the project:** quantification of the carbon footprint, identification of the improvements for reducing the GHG emissions, communication of the results.
- **Main drivers for Eridania:**
 - “Quality concept” = quality + safety + environment
 - **Communicate the “quality concept” in a robust and scientific-based way**
 - To give value to the Italian agricultural and food supply chain



- **Approach adopted by Eridania:**

- Multi-criteria approach: Carbon Footprint based on a full LCA study, according to ISO 14040-44 and ILCD Handbook

- Development of Product Category Rules for the product “sugar, from sugar beet”

- Development of EPD[®] (pre-certification) as highly developed and recognised system for the B2B and B2C communication

- Climate Declaration

- Goal & Scope and third party review by ENEA

- The carbon footprint is the entry level for approaching the life cycle concept but has severe limitations on some products

- Increased awareness and knowledge about the complexity of the product system → adoption of a methodological approach in line with the developments at European and International level

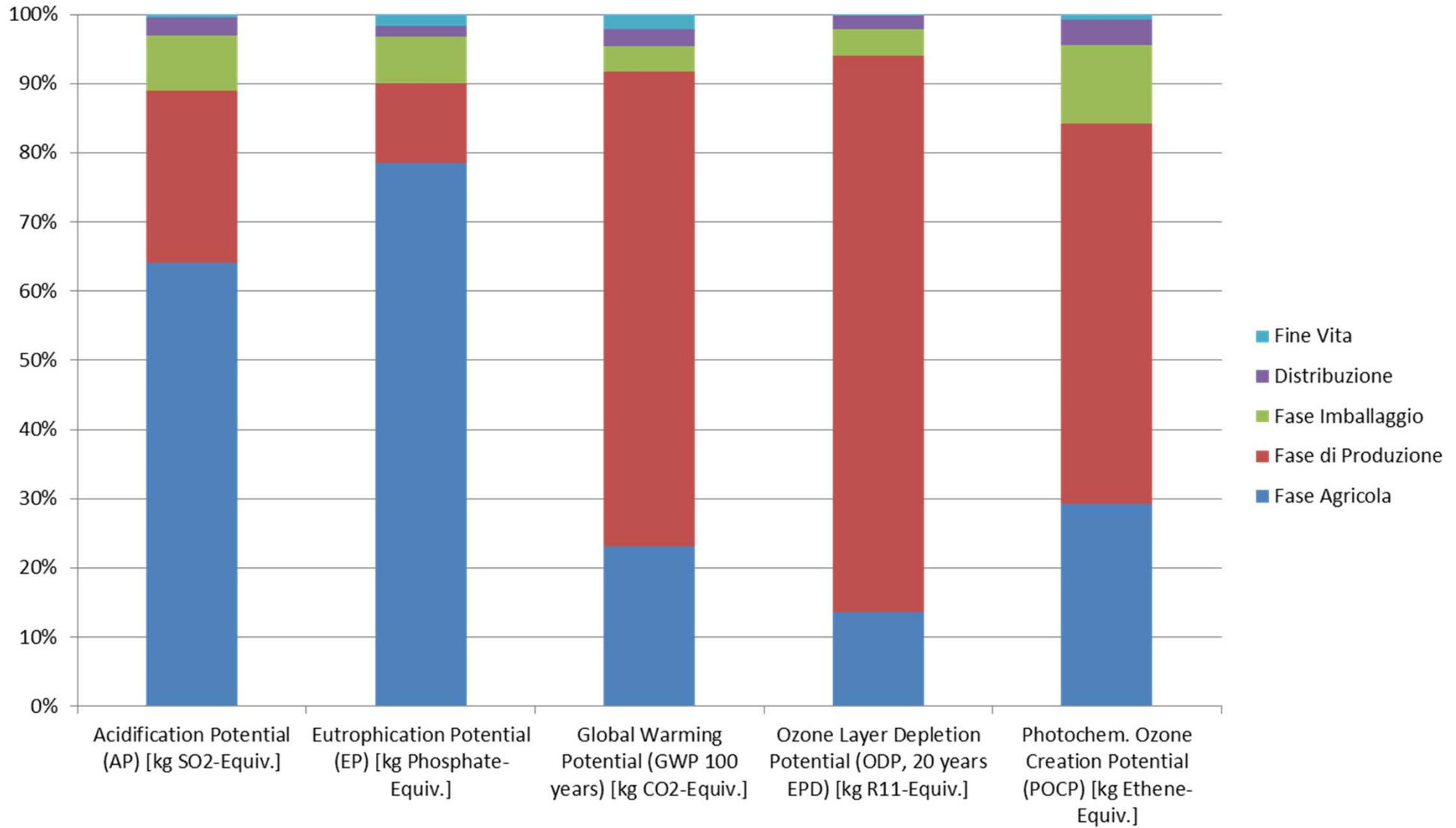
- focus on ENVIFOOD protocol and on Product Environmental Footprint (PEF)



The life cycle of Zefiro®



Results of the characterisation

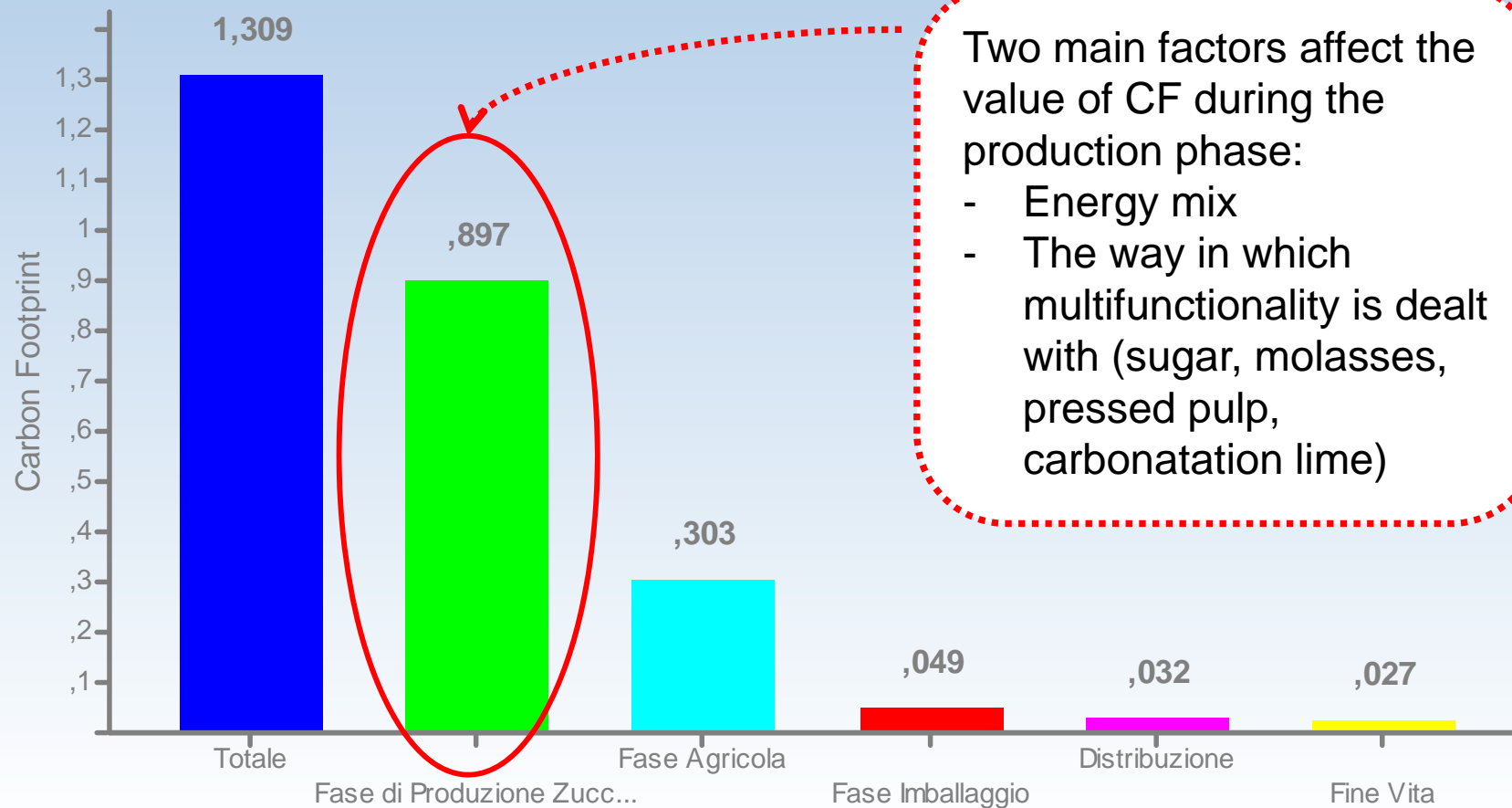


FU: 1 kg of Zefiro, packed

CF: contribution of the phases in the life cycle



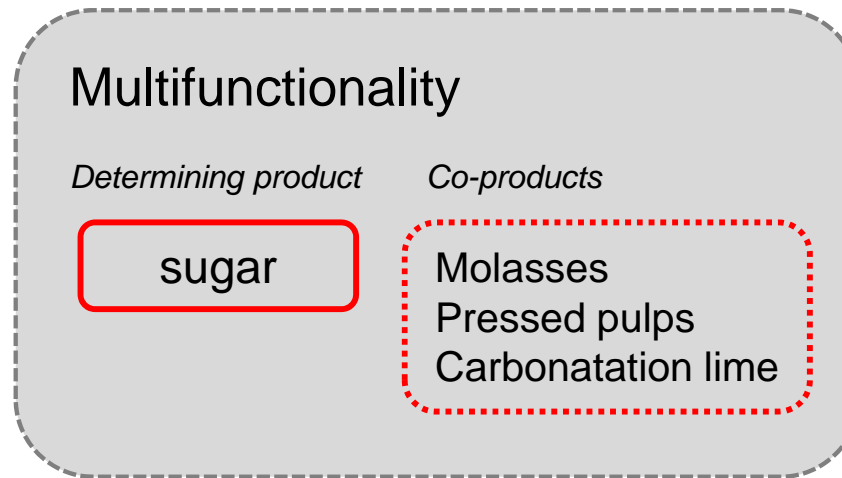
Grafico - Zucchero



Handling multifunctionality – commonalities and differences



- Other criteria for physical relationships: mass, dry substance mass, lower heating value
- Step 3: economic allocation. Great volatility, not applicable.



Data on option 2 and 3 taken from «The product CF of EU beet sugar», CEFS, 2012

Option 1

Physical relationships:
Sucrose content

- 83% sugar
- 15% molasses
- 2% all the rest

Allowed by EPD® system

Option 2

Substitution
Depending on the substituted products:

- EU data: CO2 eq. of sugar production 247 – 668

Not allowed by EPD® system

Option 3

Physical relationships
Digestible energy:

- Sugar: 68%
- Carbon. lime: 0%
- Pressed pulp: 0-12%
- Molasses: 6-13%

Allowed by EPD® system

Option 4

Other relationships
Economic allocation:

- EU reference (regulatory) price
- EU food market sugar price
- World sugar price
- Industrial (non-food) sugar EU average
- EU average mix price

Allowed by EPD® system

All the approaches are in line with ISO 14040-44, ENVIFOOD, PEF (different hierarchy)



- Multi-functionality is a methodological issue that is handled in different ways by the available standards/guidelines/systems
- For some products, it can dramatically affect the final results
- One main point to be dealt with: substitution is recommended (step 2 and 3) by Product Environmental Footprint while it is not allowed by the EPD[®] system

In which direction should the harmonisation process go?



- The development of Product Environmental Footprint Category Rules (PEFCR) during the pilot tests could provide a valuable support in the harmonisation process
- Key point: the building up of the process for PEFCR
- It is necessary to strengthen the connections among the different networks, so as to capitalise on available knowledge:
 - PCR Global Guidance Initiative and PEF
 - World Food Database and ILCD Data Network
 - National LCA networks
- Efforts should be spent on how to communicate the results to the consumers:
 - Which level of aggregation for the environmental indicators?
 - Could “environmental classes” be introduced for the food sector?
(report EC-DG 2012)



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