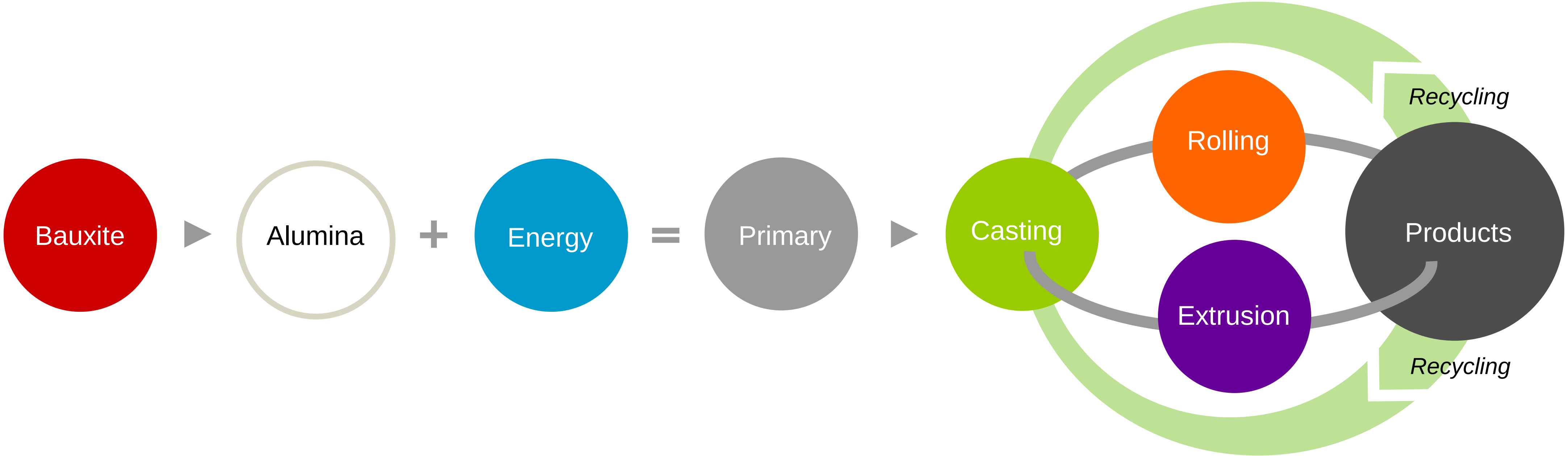
Aluminium packaging helps to reduce food waste

Hans-Jürgen Schmidt

This is Hydro

Engaged in the entire aluminium value chain



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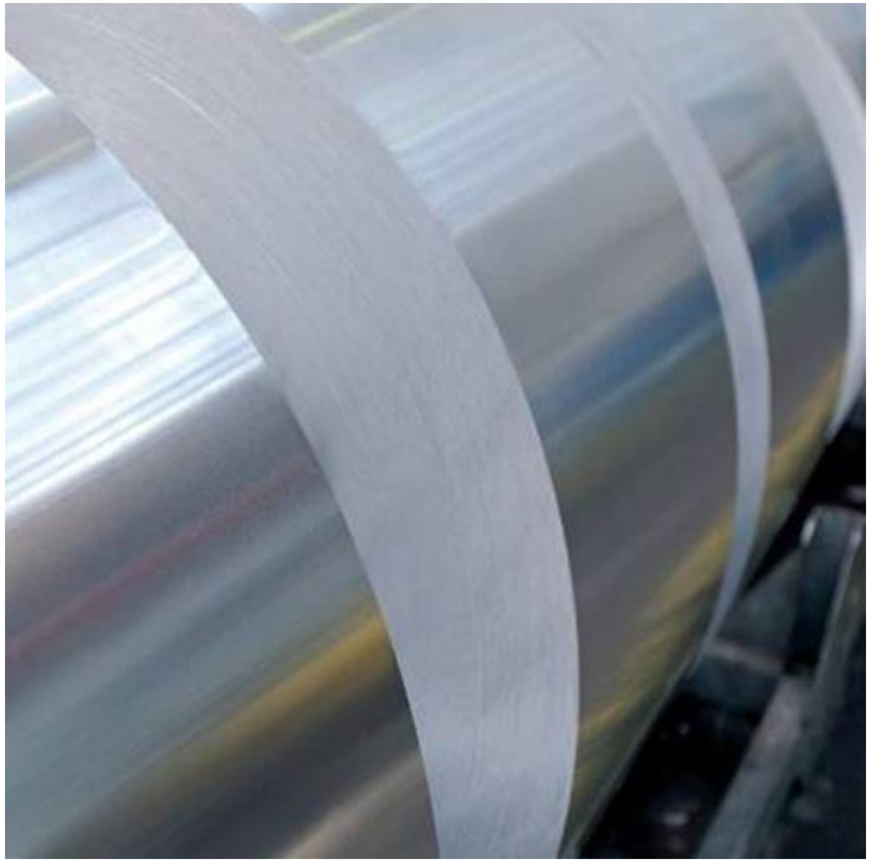
Rolled Products – facts & figures

Europe’s leading manufacturer of rolled aluminium products

- Over 6,000 employees*
- € 2.7 billion revenues (2015)
- 950,000 tonnes sold (2015)
- World leader in the manufacture of technically advanced aluminium solutions



* Including AluNorf

Products and customers

An overview

Business Unit	Global products				Special products	
Products	Automotive 	Litho 	Foil 	Cans 	Construction industry 	Industry products 
Customers	Mercedes-Benz, Audi, BMW, PSA PEUGEOT CITROËN	FUJIFILM, AGFA, Kodak	Tetra Pak, Constantia Flexibles, amcor	Ball, CROWN Brand-Building Packaging, ArdaghGroup, CAN-PACK S.A.	ABB, GEBERIT, thyssenkrupp	

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Hydro's climate strategy is to be carbon-neutral from a life-cycle perspective by 2020

Hydro aims to be climate neutral by 2020

- Integrated into business strategy in all business areas
- Turn leading HSE/CSR position into competitive advantage
- Deliver on fast-developing customer demands
- Capitalize on strong climate position over time

- Increasing energy-efficiency and reducing emissions in production processes
- Increasing production of renewable hydropower, evaluating potential of switching to renewable energy sources or natural gas

- Helping customers reduce energy consumption and emissions
- Developing products and solutions, establishing partnerships with advanced customers, and identifying new applications for metal and downstream products

- Reducing waste and saving ~ 95 % of energy by recycling post-consumer scrap in Primary Metal and Rolled Products
- Using advanced sorting technology and developing recycle-friendly alloys

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Member of ‘Aluminium Stewardship Initiative’ and ‘SAVE FOOD’

Looking around corners

Main outcomes of ASI standard development process

- An ASI standard containing Responsible Production Criteria and Material Stewardship Principles

- A Chain of Custody system, which will document the claim to be ASI compliant

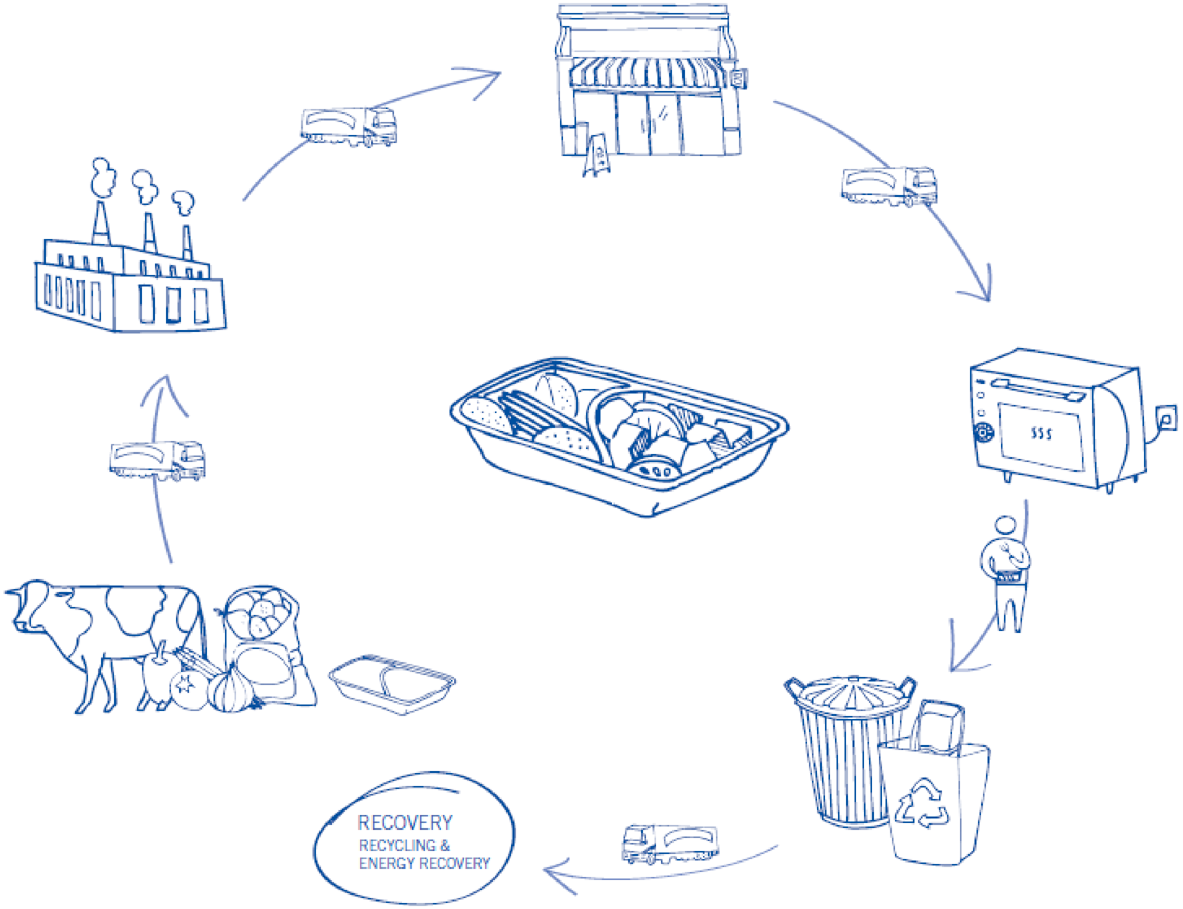
- 20 % of man-made climate gases result from the production and consumption of food
- About one third of any food produced is wasted
- 1.3 billion tonnes of food lost or wasted every year around the globe

– We aim to contribute to solutions
  – Member of SAVE FOOD
  – Optimized packaging to preserve food

Packaging as part of the life cycle of food

Packaging must be considered in relation to resources it protects

Enabling a resource efficient supply and consumption chain



- Holistic perspective throughout the value chain
- Minimize use of resources and emissions
  - Agriculture
  - Food production
  - Packaging manufacturing
  - Consumer behavior
  - Collection / recycling
- Packaging protects the product and enables the proper and safe delivery to the final user

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Aluminium packaging contributes to resource efficiency

Used into a wide range of packaging applications

- Properties: high formability, lightweight but strong, total barrier to light, gases and moisture, recycable

- Packaging optimization means prevention:
  - Beverage cans: weight dropped by around 40 % over last 20 years
  - Foil: thicknesses reduced in a range of 28 - 40 %
  - High product to pack ratio and very transport efficient
  - Ambient storage and perfect barrier
  - ‘Right’ portions






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Consumer perspectives and expectations

Packaging: Unnecessary waste?

- Concerned about ‘overpackaging’
- Six of ten consumers would prefer unpacked food*
- Lack of awareness about the role packaging plays in the food chain
- Consumer demand often induces more packaging
- Only a small minority of consumers worry about amount of food waste
- Packaging is perceived unnecessary, unsustainable, not recycable, not made from renewable resources, …
- Better informed consumers might realize that appropriate packaging that cuts food waste is actually a good thing

*Trendreport Food 2017

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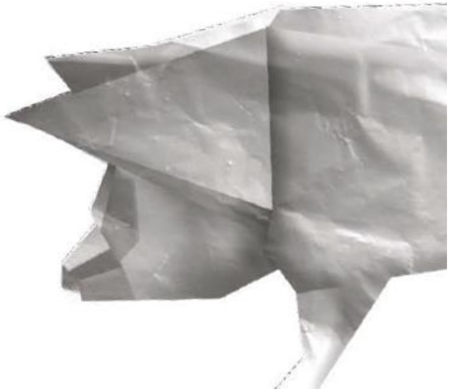
The bigger picture: the problem of food waste

The bigger picture: the problem of food waste

"I SHOCK MYSELF WITH HOW MUCH FOOD I THROW AWAY"



622 MILLION TONNES OF FOOD PRODUCED IN EUROPE

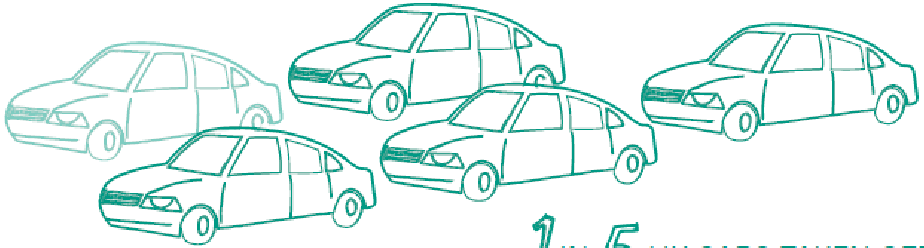
500 EUROS PER HOUSEHOLD OF AVOIDABLE FOOD WASTE IN EUROPE

90 BILLION EUROS SPENT IN EUROPE ON FOOD WHICH WILL NEVER BE EATEN

71 MILLION TONNES OF HOUSEHOLD FOOD WASTE

25 PERCENT OF EUROPE'S GREEN-HOUSE GAS EMISSIONS COME FROM FOOD AND DRINK

4.2 TONNES OF GREENHOUSE GASES RELEASED BY EVERY TONNE OF FOOD THAT IS WASTED



1 IN **5** UK CARS TAKEN OFF THE ROAD

Source: EAFA, WRAP

Better understanding about relative impacts

Take an approach that considers the full product life cycle

- Quantifying benefits of reduced food waste is still in a developing phase
- Aluminium associations / companies have been developing robust computations around the ability of a aluminium packaging to protect food and to reduce food waste

* Source: EAFA/FPE LCA's qualified as best practice by UNEP/SETAC (Nov. 2013)

What`s the carbon footprint of a cup of coffee?

Life Cycle Analysis of the complete food supply and consumption chain for a cup of coffee

Source: EAFA/FPE LCA’s qualified as best practice by UNEP/SETAC (Nov. 2013)

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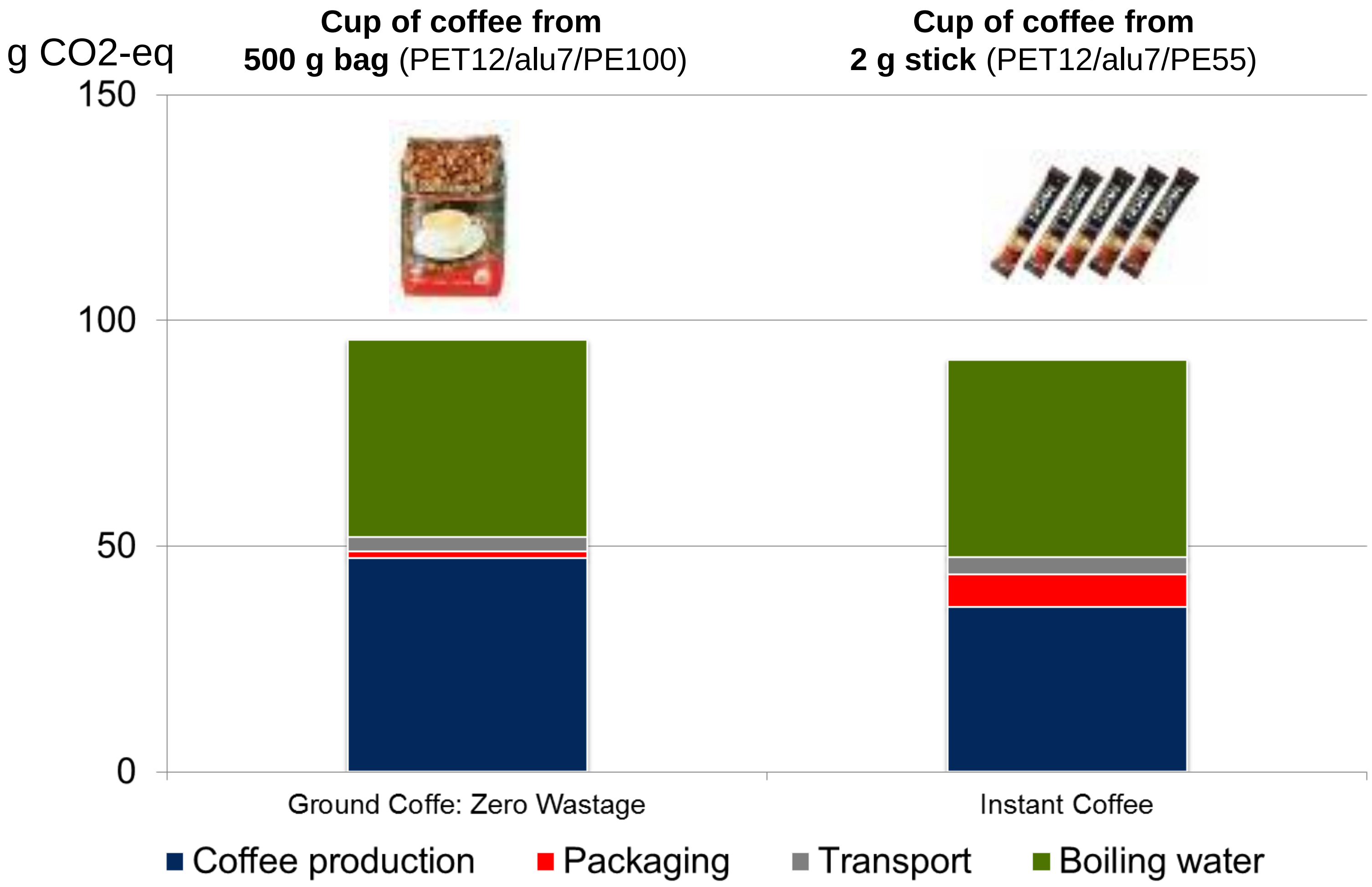
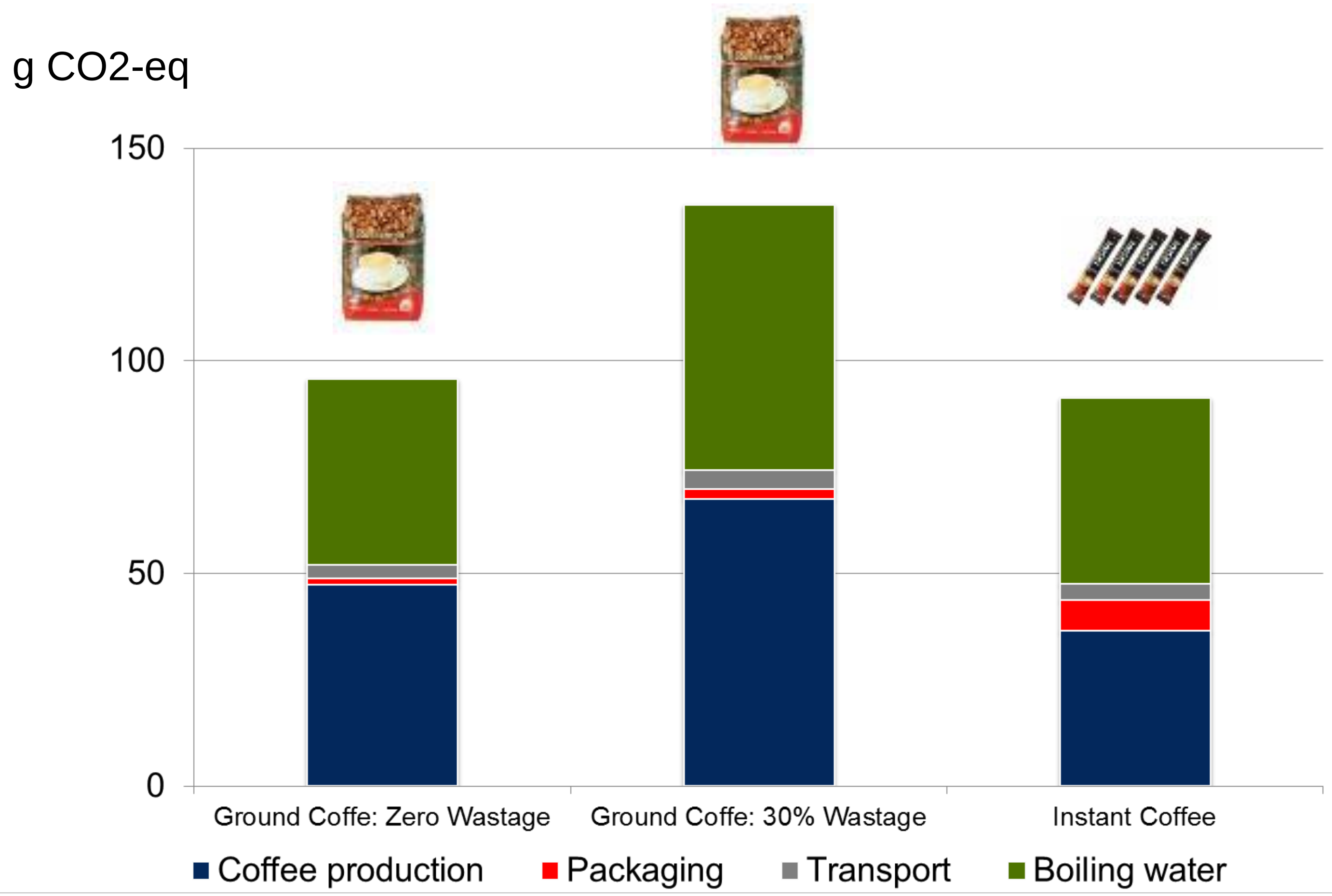
The carbon footprint of a cup of coffee



Source: EAFA/FPE LCA's qualified as best practice by UNEP/SETAC (Nov. 2013)

The carbon footprint of a cup of coffee

And the relevance of food waste and packaging format



*Source: EAFA/FPE LCA's qualified as best practice by UNEP/SETAC (Nov. 2013

Prevention by portion packs

Customized sizes

- Allow to meet the needs of the consumer more precisely, therefore help avoiding waste of the product
- ‘The right product, in the right quantity, at the right place … and on the move’’
- Somewhat worse pack to product ratio but potential to reduce food losses

Study shows single serve packs help fight food waste

The conclusions from a large-scale study carried out in French school canteens highlighted that the waste rate of cheese is 60% lower for individually packed portions compared to cheese sliced and openly displayed. The study was commissioned by global cheese maker Bel Group and conducted by IFOP research institute. It covered nearly 60,000 meals in 33 French schools.

Overall the measured waste rate for individually packed cheese is only 6% compared to 15% for cheese slices prepared on site, according to the study findings – offering tangible evidence of the beneficial role of packaging (single serve packaging in particular) to help reduce food waste.

The study revealed that, at all stages of meal delivery, single serve portions can significantly minimize the risk of waste. First, the leftover cheese on the tray is reduced (6% for single serve packed portions versus 9% for sliced cheese) due in part to the appropriate and adjusted serving size. Additionally, there are no losses during preparation (compared to 3% for cheeses sliced on site). Also there is no waste after service, as unused pre-packed portions, particularly in self-service restaurants, can easily be returned to the refrigerator, unlike un-packed food which is often discarded (3% of sliced cheese is wasted in this way).

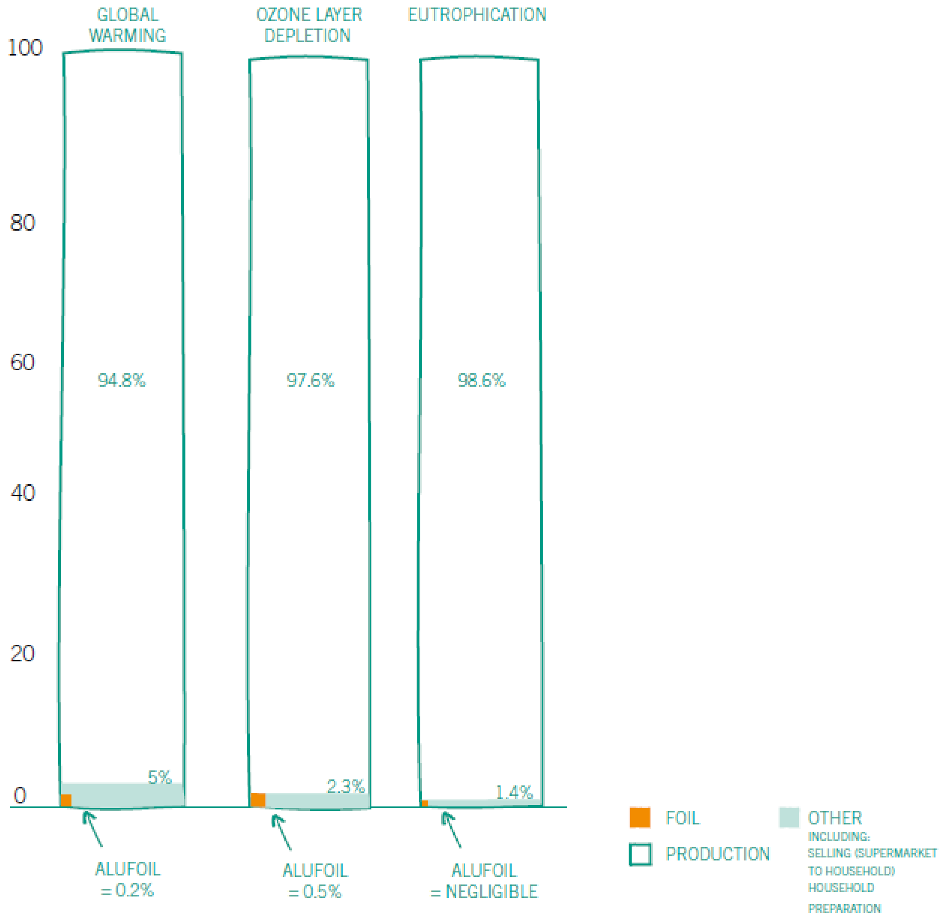
Examples of cheese portions served in canteens

Statistics show that, in Europe, nearly two thirds of food waste occurs at the consumption stage, mainly in households but also in the food services sector (source FUSIONS 2016). Appropriate packaging, such as single serve packed portions, clearly can be a major part of the solution to meet these challenges. ///

Household foil protecting roast leftovers

THE COMPARATIVE IMPACT OF ALUFOIL IN RELATION TO THE RESOURCES IT PROTECTS

AN EXAMPLE OF HOUSEHOLD FOIL PROTECTING ROAST LEFTOVERS



ESU SERVICES, 2009

Aluminium foil - a sustainable sandwich wrap option?

Study results counter myths

- Packaging for homemade snacks to be convenient and eco-friendly, as well as providing proper protection.
- Aluminium foil's supposed poorer environmental performance
- IFEU* study to measure the environmental performance of two different sandwich packs: aluminium foil vs. rigid plastic lunchbox
- 'From an environmental point of view the aluminium foil performs no worse than the plastic box to which it is compared'

*Source IFEU - Institute for Energy and Environmental Research)

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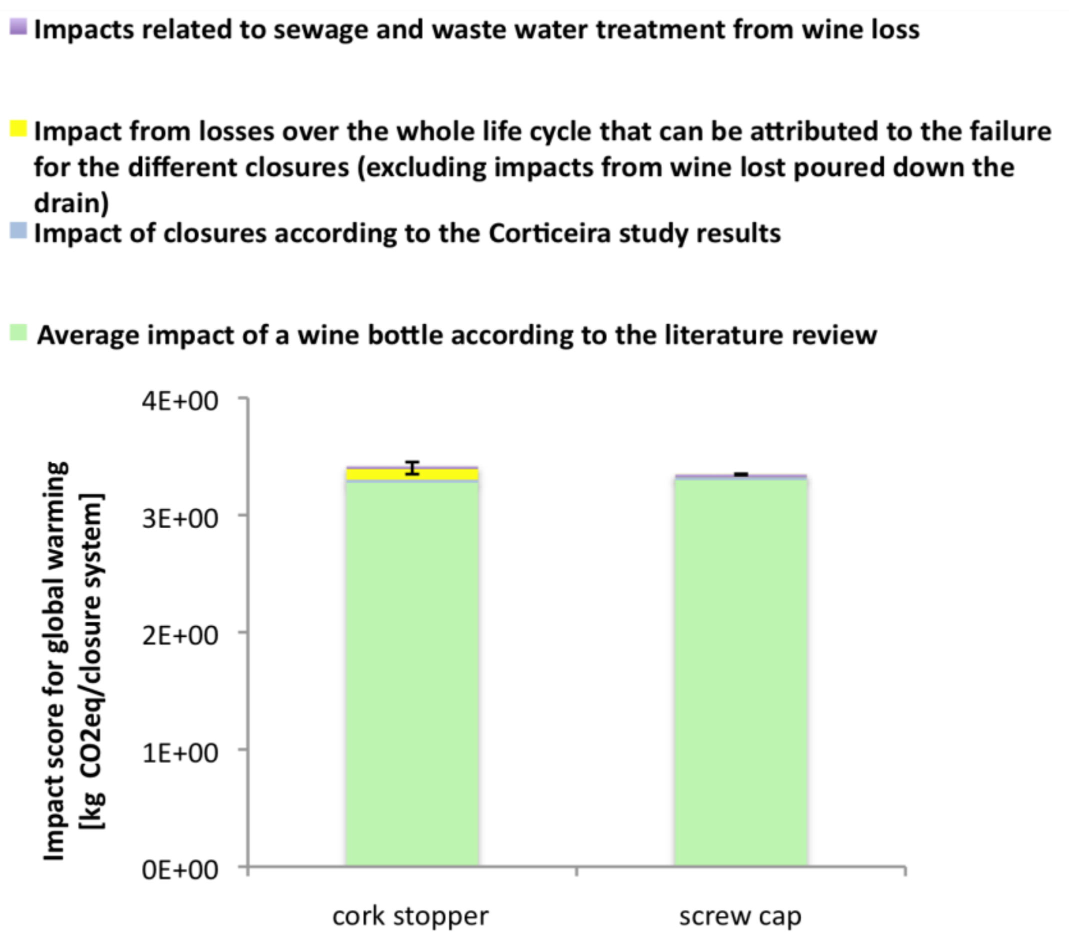
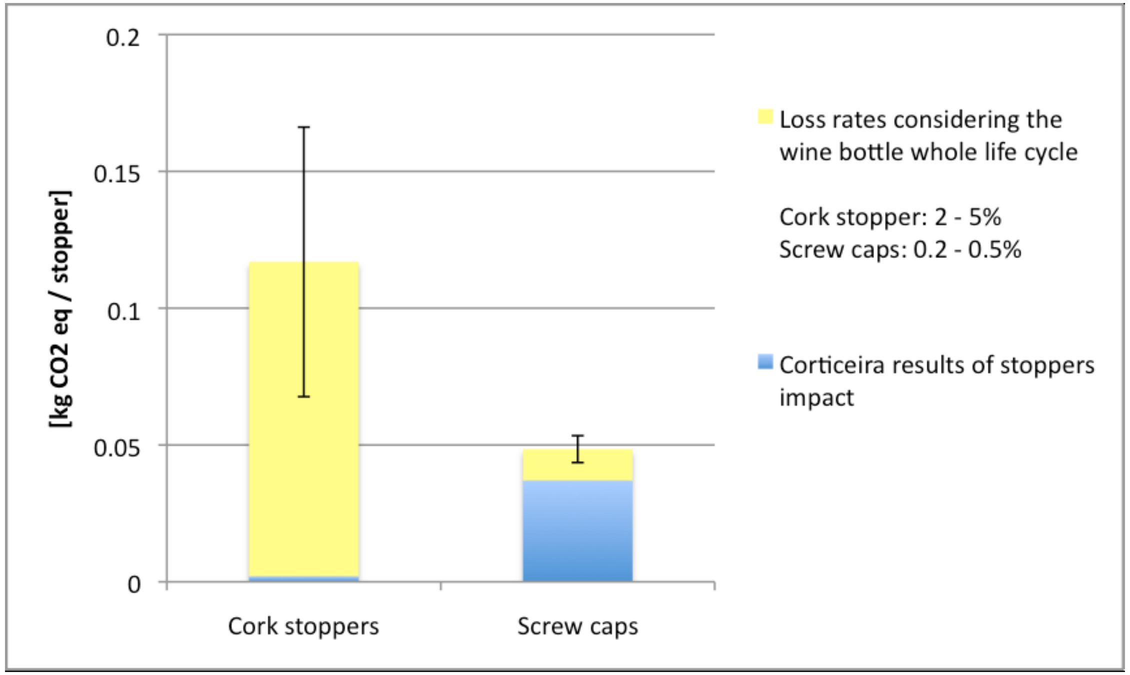
The influence of wine loss rates on the LCA results for (bottled) wine



- Quantis study on cork stoppers and aluminium screw caps
- Contribution of the closure itself is not significant
- Wine loss rate more important than closure material



Source: EAFA, Quantis

Aluminium foil in beverage cartons

Just one protects them all

One 25-kg ingot of aluminium only equals the amount of ultra-thin aluminium foil used to keep 19,000 litres of juice, h-milk or other goods in all these compound cartons safely fresh for many months - with no need for any cooling energy!

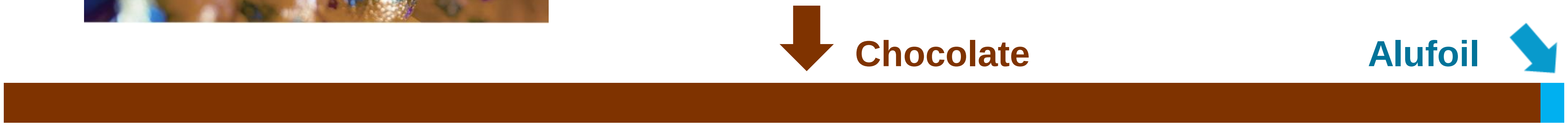
Foil and chocolate - the perfect fit for Easter bunnies

Chocolate: 360 g CO_2 per 100 g

- Milk production
- Cocoa production
- Roasting
- Transports
- Chocolate fabrication

Aluminium foil

- 1 g foil for a 100 g Easter bunny
- Less than 10 g CO_2 from aluminium foil production, potentially less depending on recycling situation

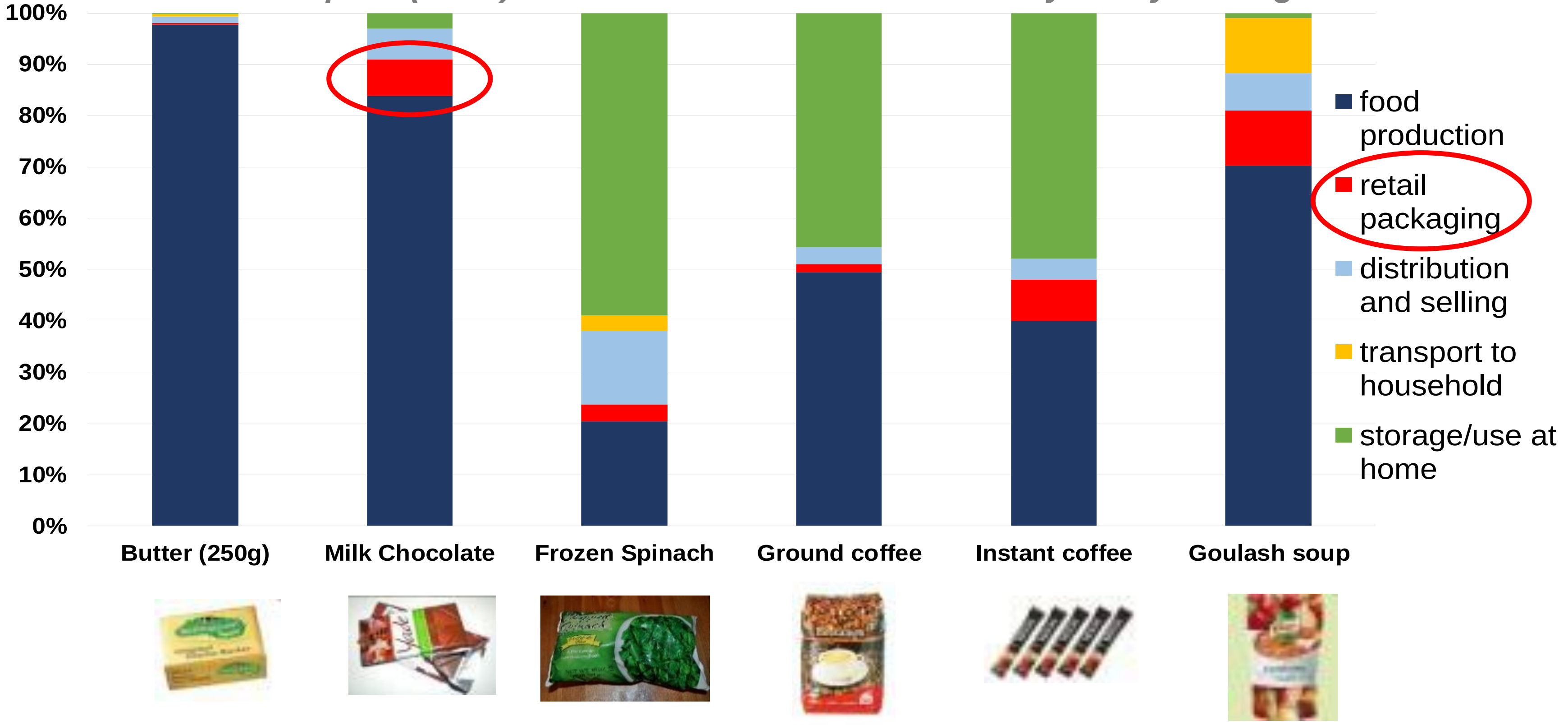


Source: Hydro

Packaging and packed product life cycle

Packaging represents a relatively small part of the product overall impact – *on average < 10 %*

Carbon Footprint (GWP) of Food Products – Breakdown by life cycle stage



Aluminium foil

- **Saves more resources than it consumes**
- **Is part of the solution to reducing food waste**

Source: EAFA/FPE LCA's qualified as best practice by UNEP/SETAC (Nov. 2013

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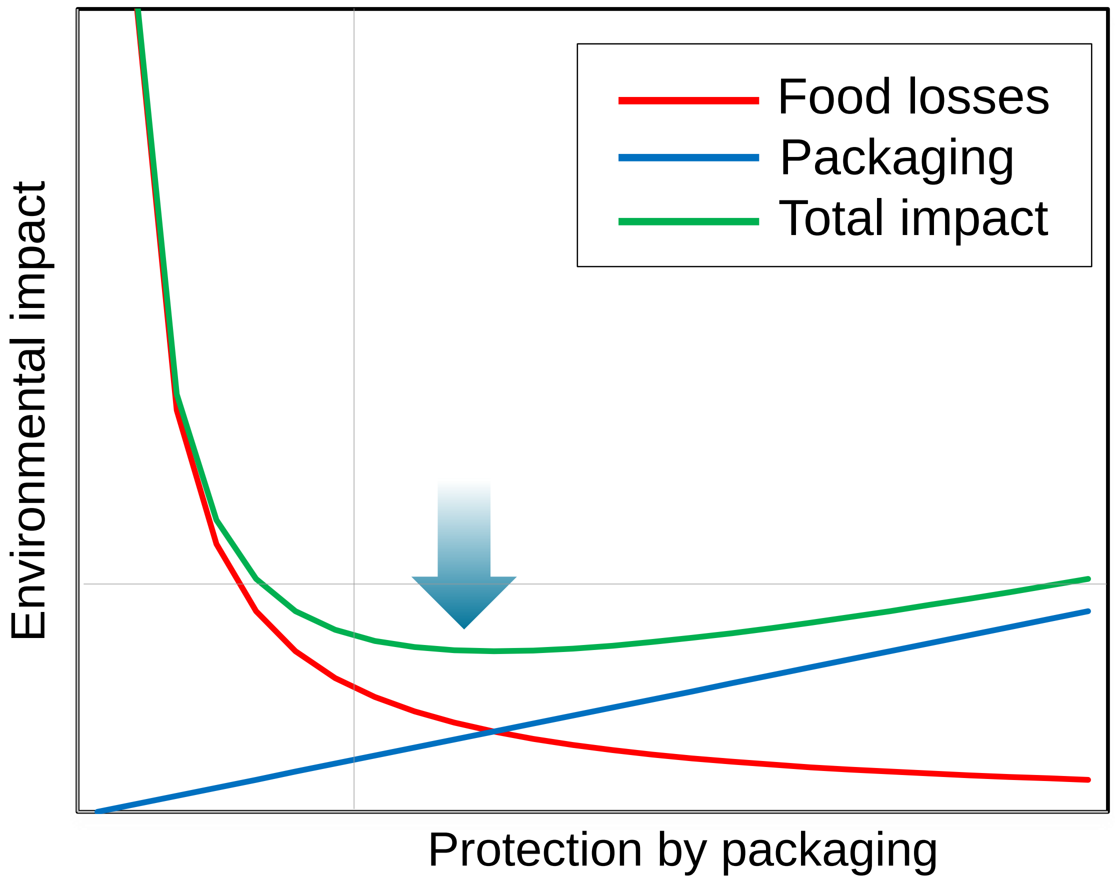
The perfect fit

Where is the optimum?

Packaging impact vs. food losses

- More protection by packaging: ➡ somewhat increased environmental impact
- No packaging / underperforming packaging can cause significant food losses: ➡ high environmental impact
- The perfect fit: optimized packaging for minimized life cycle impact
- Usually, ‚underpackaging' more relevant than ‚overpackaging'

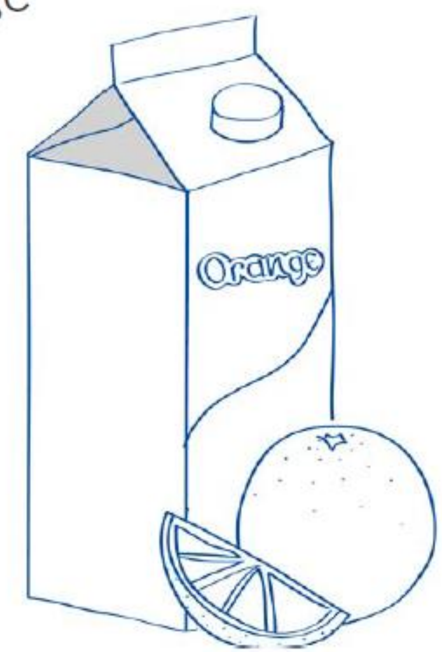
➡ ‚More is less'



Assumed figues

More preservation and more barrier effect

- More preservation (through the absolute barrier effect) means a long shelf-life at room temperature and less use of energy for transportation and storage
- More barrier effect means less loss of the nutritional and health benefits of food



Source: EAFA

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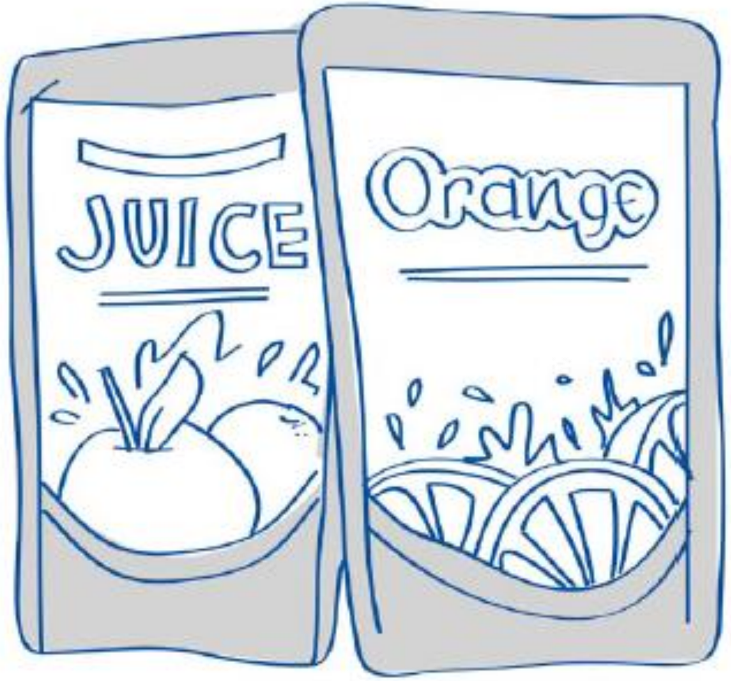
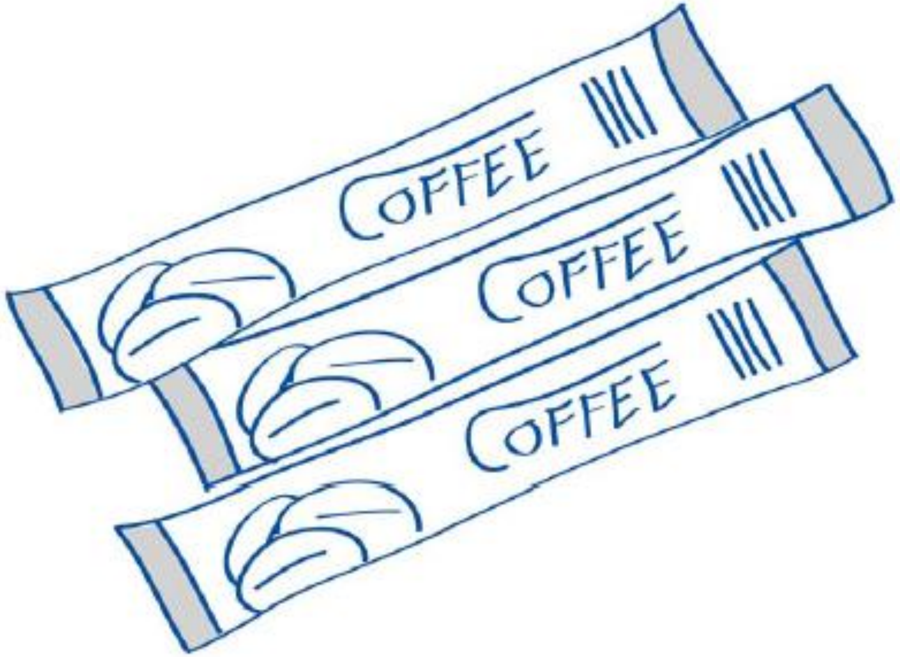
More efficiency and more convenience

- More barrier efficiency and capability means less use of packaging material
- More convenience (through portability and portioning) means less food wastage

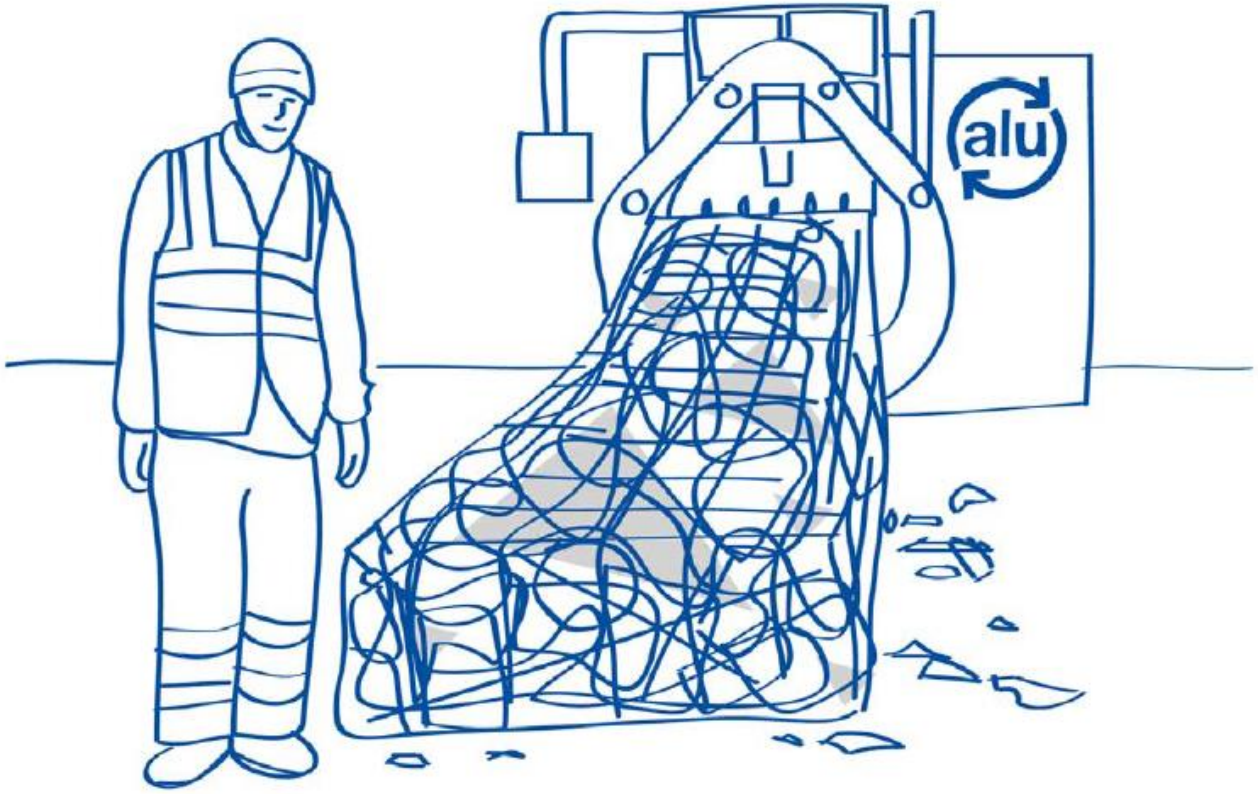




Source: EAFA

More recycling and recovery

- More recycling and recovery means less use of virgin resources



CEFLEX
A CIRCULAR ECONOMY FOR FLEXIBLE PACKAGING

Source: EAFA


INFINITE
ALUMINIUM