

# **Sustainable Packaging Strategies and Materials**

**Regenerative Food Processing, Lake Week, Wädenswil**

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**Zürich University of Applied Sciences**  
**Institute of Food and Beverage Innovation**

# Packaging Contribution to the Sustainable Development Goals



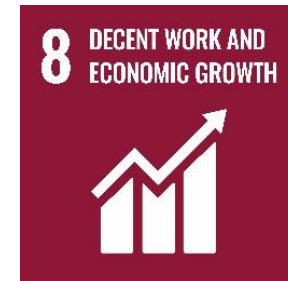
## 112 SAFE AND ACCESSIBLE FOOD

- Affordable food prices (small package sizes, low-cost packaging material)
- Reduction of food waste remains needed: 1/3 of food is wasted today



## 3 INCREASED REACH OF MEDICAL DEVICES AND HYGIENE

- Single-wrapped medical devices (syringes, catheters etc.) allow long-lasting sterility at low cost
- Affordable medicine (single-dose supply, low cost packaging material)



## 819 RELEVANT CONTRIBUTOR TO ECONOMIC GROWTH

- In 2018 the plastic packaging industry was worth > US\$ 300 bn and growing
- Continuous flow of start-ups and R&D



## 6 CLEAN WATER SUPPLY

- Plastic water containers/bottles are in many regions the only source of safe drinking water: 1/3 of the world population still do not have access to safe drinking water



# Drivers of Sustainability

## RESSOURCE DEPLETION

Energie

Water

Fossil Ressources

GHG Emissions

Climate Change

## ENVIRONMENTAL POLLUTION

Waste Leakage

Ocean Waste

Microplastics

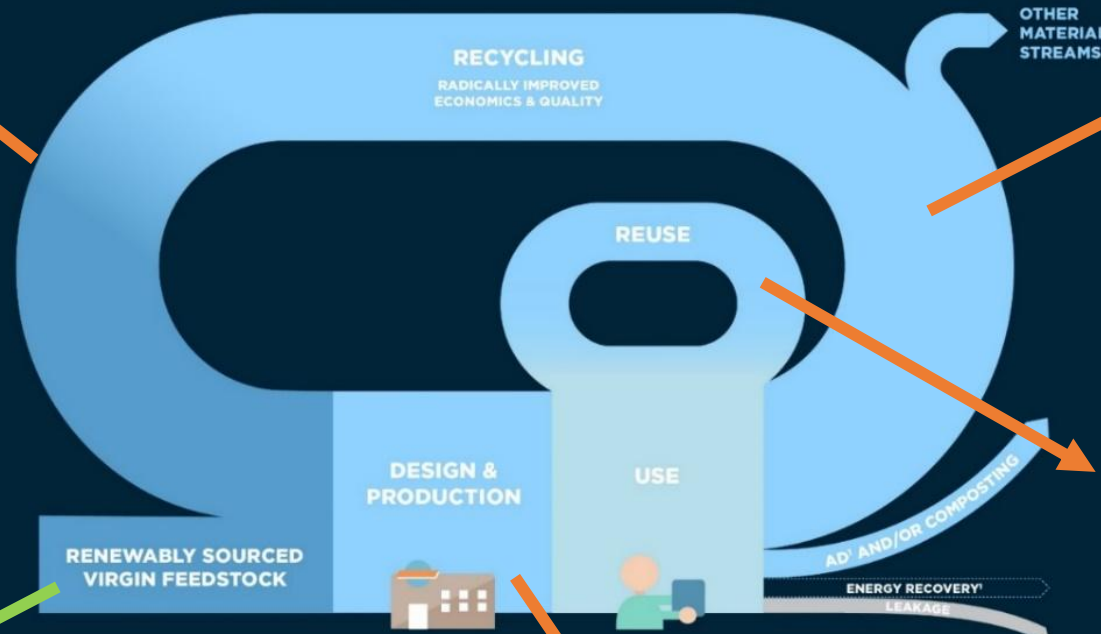


# THE NEW PLASTICS ECONOMY

Remove

1 CREATE AN EFFECTIVE AFTER-USE PLASTICS ECONOMY

Recycle



Re-Use

3 DECOUPLE PLASTICS FROM FOSSIL FEEDSTOCKS

2 DRASTICALLY REDUCE THE LEAKAGE OF PLASTICS INTO NATURAL SYSTEMS & OTHER NEGATIVE EXTERNALITIES

Source: Ellen MacArthur Foundation

Biobased resources

WORLD ECONOMIC FORUM, ELLEN MACARTHUR FOUNDATION, MCKINSEY & COMPANY, A NEW PLASTICS ECONOMY: RETHINKING THE FUTURE OF PLASTICS (2016), ELLENMACARTHURFOUNDATION.ORG/PUBLICATIONS

ELLEN MACARTHUR

1 Anaerobic digestion  
2 The role of, and boundary conditions for, energy recovery in the New Plastics Economy needs to be further investigated.  
Source: Project Mainstream analysis

Reduce & Replace





**Development of a sustainable beverage packaging as  
alternative to aluminium cans**




Replace

# Sustainable beverage packaging

**Type:** Innosuisse (National Funding)  
**Project Partners:** Center for Food Packaging, ZHAW  
Center for Product and Process Design, ZHAW  
Institute for Mechatronics, ZHAW  
Envican GmbH

Innosuisse - Swiss Innovation Agency

 Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra



CO2 Fussabdruck  
(in CO2e kg/1000 L)



Gemäß Studie IFEU Institut Heidelberg, 2020





**LOFT –LOcal Food for the fuTure**



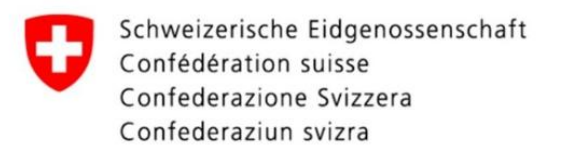
Recycle

# LOFT - LOcal Food for the fuTure

**Type:** Innosuisse (National Funding)  
**Project Partners:** Center for Food Packaging, ZHAW  
Research Group Ecotechnology, ZHAW  
Research Division Plant-Production Systems, Agroscope  
Yasai AG  
Fenaco



Innosuisse - Swiss Innovation Agency





# Sustainable Packaging Architecture





Reuse & Replace

# Sustainable Packaging Architecture

**Type:** ZHAW, Sustainable Impact Program  
**Project Partners:** Center for Food Packaging, ZHAW  
Zurich University of Arts  
Institute of Applied Physiology



hdk

Zürcher Hochschule der Künste  
Zurich University of the Arts



# Valorisation of Side Streams of Agri-Food Industry





Biobased

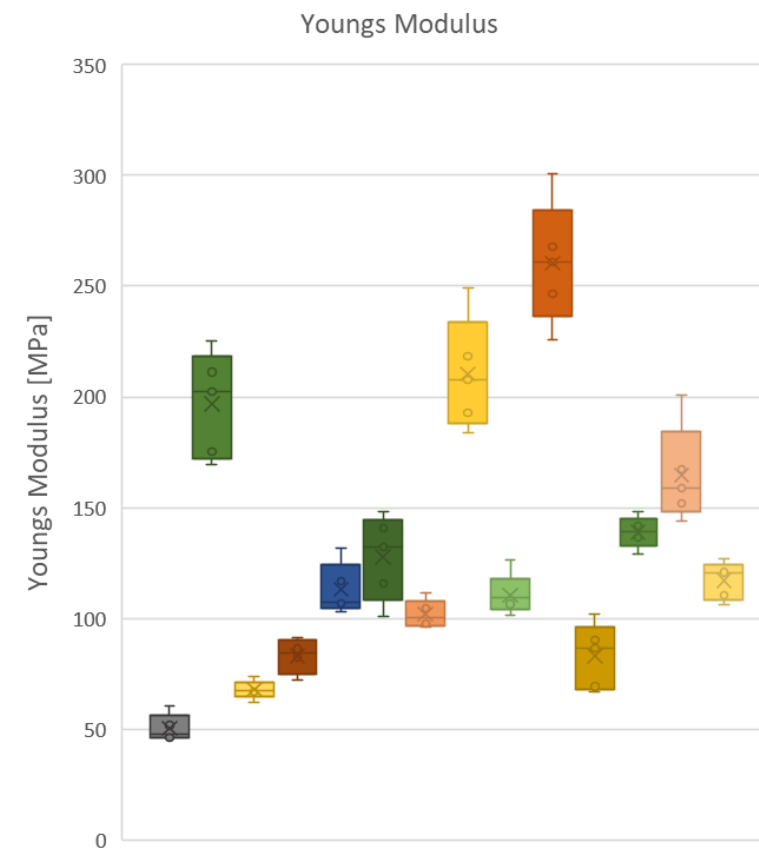
# Valorisation of Side Streams of Agri-Food Industry

**Type:** Avina Foundation, Innosuisse  
**Project Partners:** Center for Food Packaging, ZHAW  
Center for Food Technology

A V I N A



zhaw









# Sustainable Cool-transport Packaging





Biobased

## Sustainable Cool-transport Packaging

**Type:** Innosuisse, Innocheque

**Project Partners:** Center for Food Packaging ZHAW, CC Thermal Energy Storage, HSLU, Taracell AG



**HSLU** Lucerne University  
of Applied Sciences  
and Arts

taracell

**Innosuisse - Swiss Innovation Agency**



Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra





Sustainable food needs  
sustainable packaging  
for a healthy planet

**Thank you for  
your attention!**

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