

# The German REFOWAS-Project

## REduce FOod WASTe

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Thünen-Institute, Germany

#reducefoodwaste Conference on Food Waste Prevention and Management

Vienna

26<sup>th</sup> April 2019

# background

## REFOWAS-project

### 'Pathways to **RE**duce **FO**od **WAS**te'

support the German

### **National Strategy to reduce Food Waste, 2019**

>>>national implementation of the SDG target 12.3



Nationale Strategie zur  
Reduzierung der  
Lebensmittelverschwendung

bmel.de

# background

## National Strategy to reduce Food Waste, 2019



Nationale Strategie zur Reduzierung der Lebensmittelverschwendung

as from  
**February 2019**

**June 2019**

**June 2019**

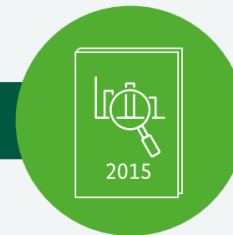
as from  
**September 2019**



**sector-specific discussions**



**international workshop for harmonizing methods**



**baseline 2015**



**national discussion forum**

# REFOWAS-project

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Federal Ministry  
of Education  
and Research

- **balancing**
  - **life cycle assessment**
  - **case studies**
    - bakery
    - fruit and vegetable production
    - schools
  - **socio-empirical study**
- >> options for action

Realized by

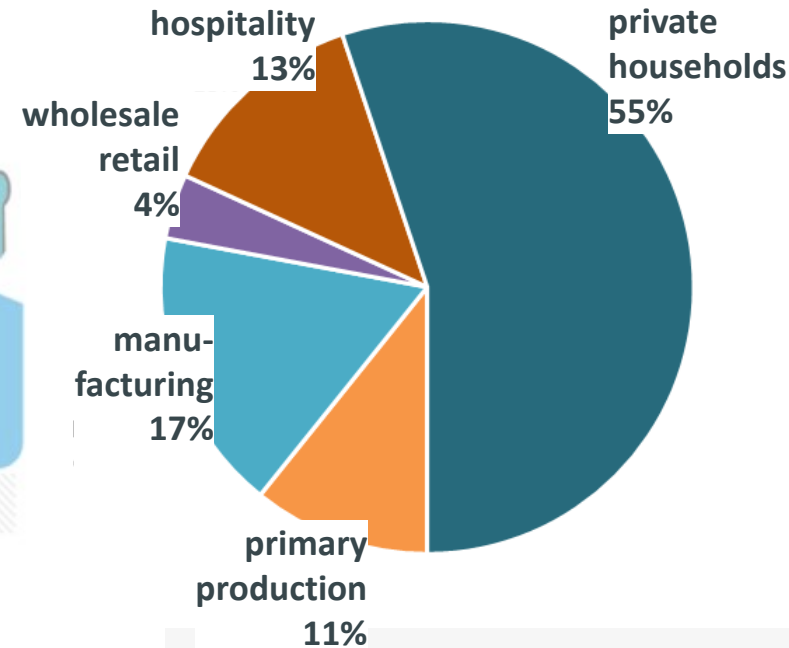
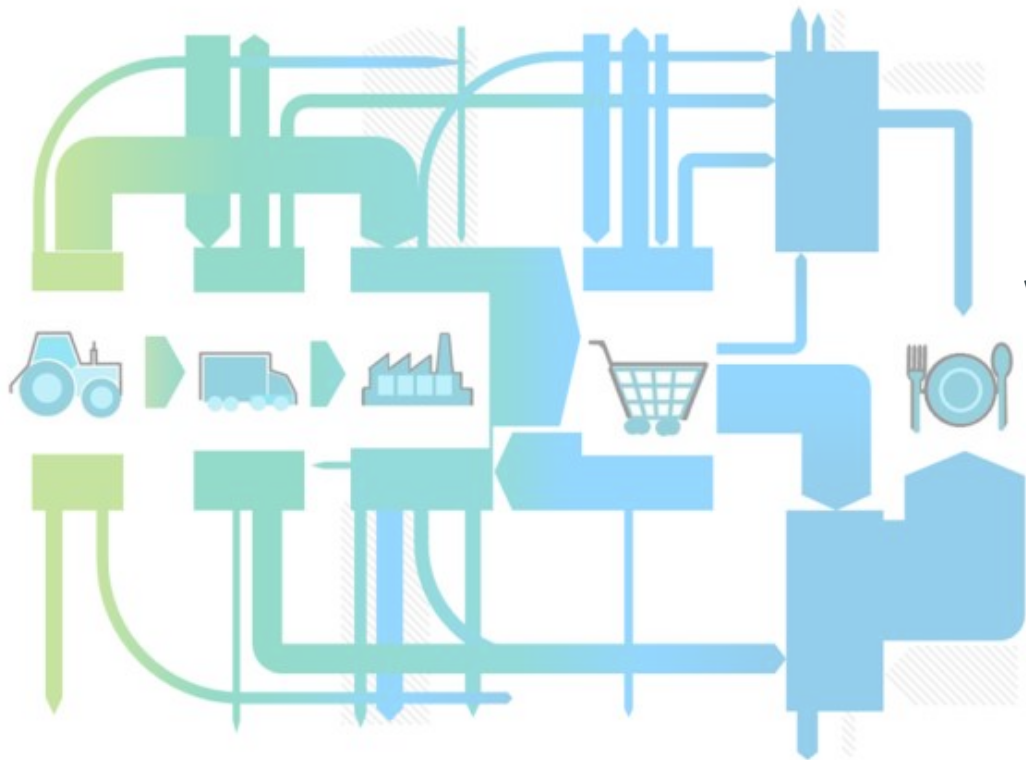


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*>>Session C - Food Service 1:  
Digital measuring methods to quantify food waste at  
consumer level towards an improved food  
management (Dominik Leverenz, Stuttgart  
University)*

**>> options for action**

- mass balanced material flow model of the German food system



- balancing
- **life cycle assessment**
- case studies
  - bakery
  - fruit and vegetable production
  - schools
- socio-empirical study

*defined  
500 activities  
in 12 groups of  
food products*



bakery products



fruits

eggs



oils  
and  
fats



sweets



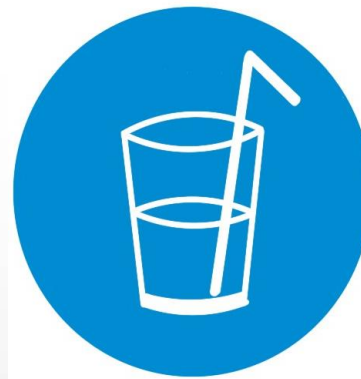
vegetables



others



potatoes



beverages



fish



meat and  
sausages

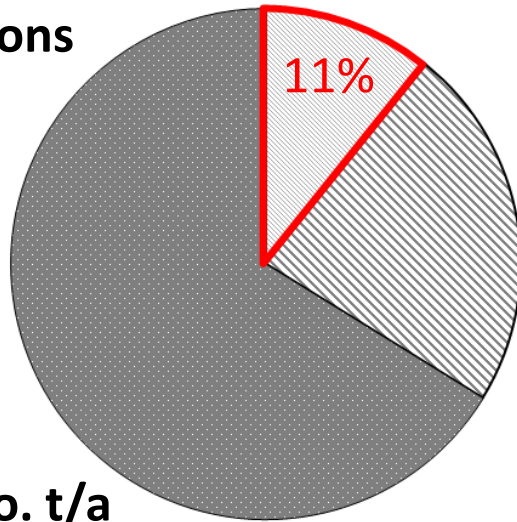


dairy

>> options for action

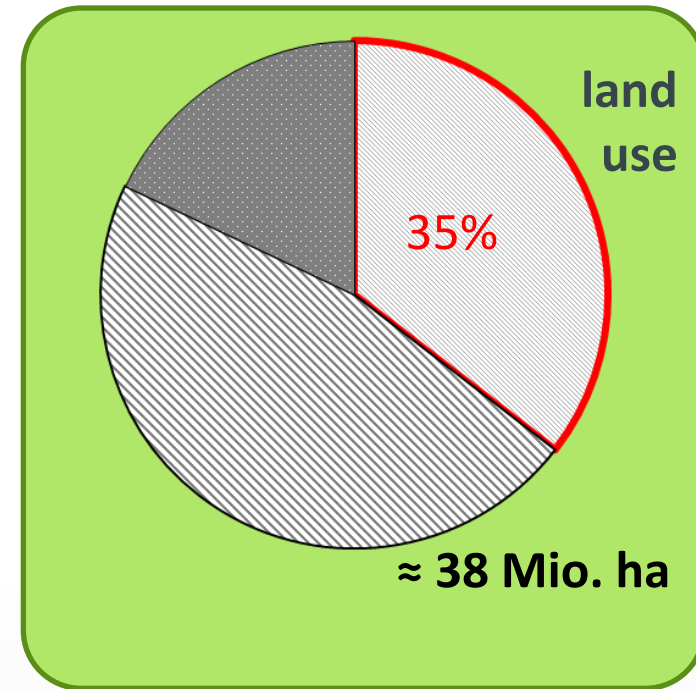
# Ecological impacts of the food consumption in Germany

food consumption in  
metric tons  
of fresh  
mass

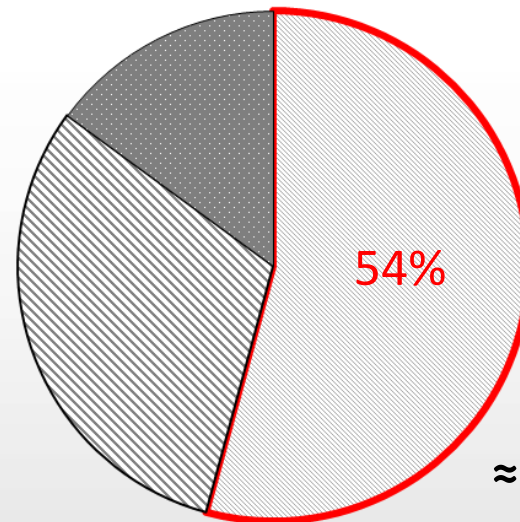


≈ 95 Mio. t/a

- animal products
- ▨ plant products
- beverages



≈ 38 Mio. ha



CO<sub>2</sub>-equivalents

≈ 177 Mio. t CO<sub>2</sub>-equ./a

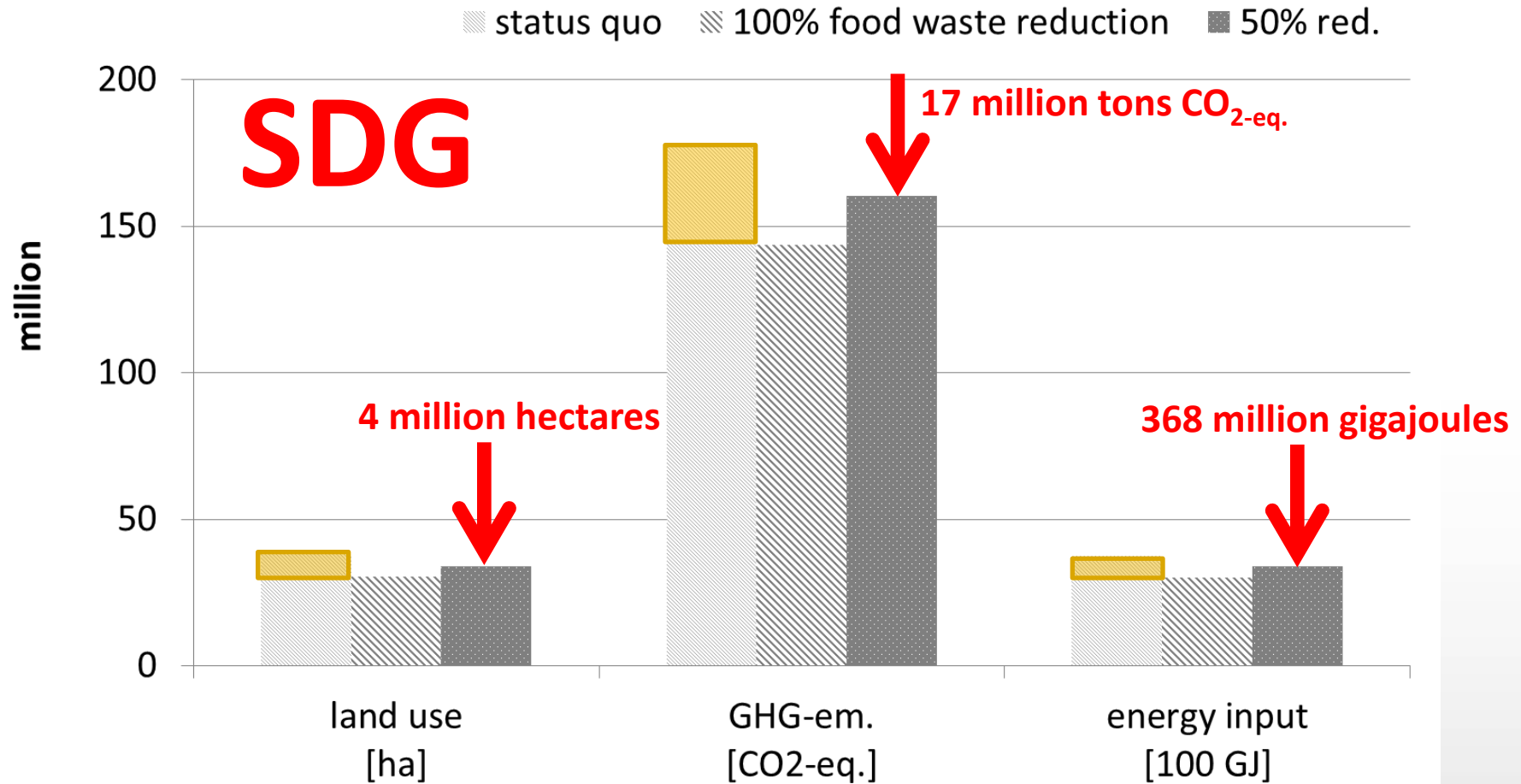


# land use for food consumption in Germany (ex.: vegetables)



executed by using data of EXIOBASE and the software openLCA

# Ecological impacts of the food consumption in Germany



- **balancing**
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- **socio-empirical study**

*>>Session H - Retail:*

*Quantification of food waste and identification of food waste management strategies in bakeries (Karoline Owusu-Sekyere, Stuttgart University)*

**>> options for action**

- (1) 91 % of the food waste in bakeries are generated by returns.
- (2) Monetary losses due to returns: 35,000 - 77,000 EUR per store and year.
- (3) Amount of returns depends on: company size, store size, delivery quantity, location, type of store, product range, weather.
- (4) IT-solutions (forecasting systems) customized on the merchandise management system can reduce losses.

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*>>Session E - Food Production:  
Food Losses in Fruit and Vegetable Production in  
Germany (Ludwig-Ohm Sabine, Thünen Institute)*

**>> options for action**

- Food losses at production level fluctuate due to varying weather conditions as well as market demand.



- Food losses at production level fluctuate due to varying weather conditions as well as market demand.
- Less apple- and strawberry-losses (than those of carrots and salad) due to alternative use.



- Food losses at due to varying as well as mar
- Less apple- and (than those of due to alternat

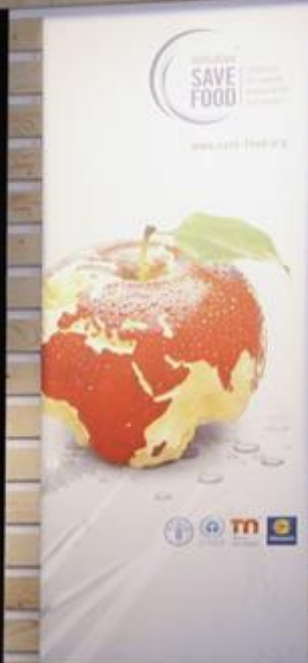


- Technical solutions to reduce food losses are cost-intensive.



- **balancing**
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  - **schools** *with catering service*
- **socio-empirical study**

>> **options for action**



REFOWAS-project

schools



verbraucherzentrale *Nordrhein-Westfalen*





„Mach mit – und werde Lebensmittel-Retter!“

### Abfallbarometer

• keine Zeit  
• nicht so viel essen vorhin  
• kein Fleisch, so mein Sport  
• Das Fleisch war zu trocken  
• der wurde schlecht  
• *Wurst nicht*

• Zu große  
• kein  
• Zu  
• Die  
• Die  
• Die  
• Die

Be



*„Mach mit – und werde Lebensmittel-Retter!“*

### Abfallbarometer

M.6	7A	9.5		
Mittwoch	Donnerstag	Freitag	Sonntag	Montag

*„In der Übersicht der Abfallbarometer werden täglich die Lebensmittel-Mengen gemessen. Die Durchschnittswerte der vergangenen Tage werden dir und dir gezeigt.“*

*„Mach mit – und werde Lebensmittel-Retter!“*

### Tellerreste Mittwoch

- keine ZBZ
- nicht so viel essen vor dem Sport
- Lachs speisen, da macht sie
- Das Fleisch war zu schön
- die Sauce schmeckt
- *zu wenig*

- Zu große Portion
- kein Hunger mehr
- Zu viel
- Die Soße war nicht lecker
- Zu viel
- Die Soße war nicht lecker
- keine Hunger
- hat nicht geschmeckt
- *zu wenig*

**Gesamtwert:**

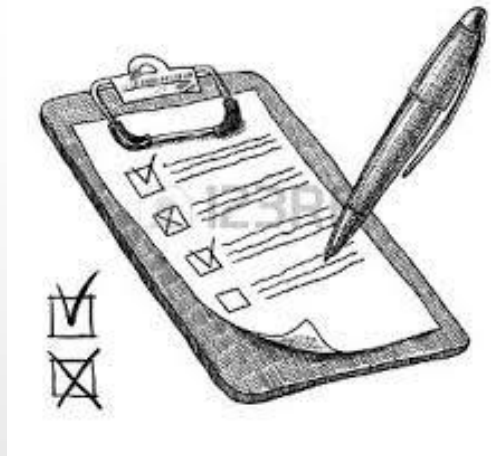
- Die Größe der Portion auf die Menge und selbst das Durchschnittswert
- Zeichen einer Abfallbarometer mit den Lebensmittelresten
- Überlegt gemeinsam, warum diese Dinge gemessen ist und die Gründe für die jeweiligen Lebensmittelreste



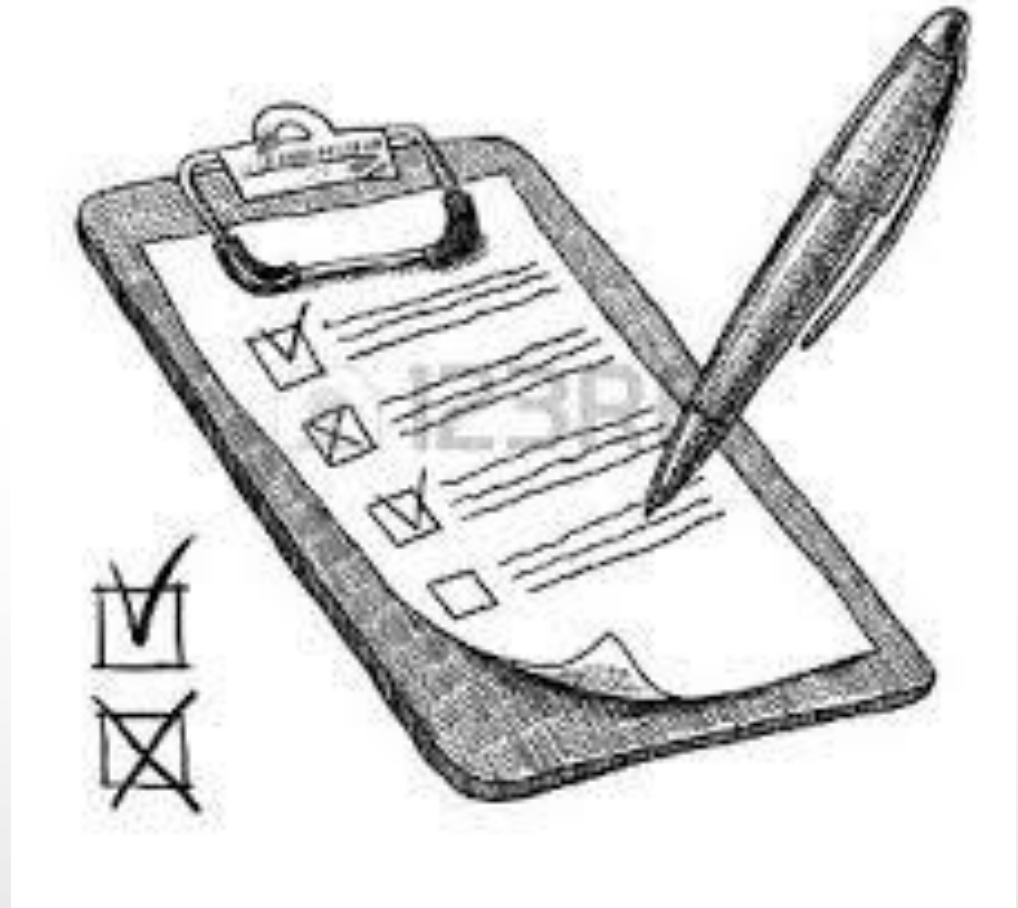
- (1) 25% of the produced meals be discarded.
- (2) 1/3 of this food waste and related costs can be reduced with simple and short-term measures in the kitchen management, at the serving counter, in communication and canteen procedures.
- (3) Multifactorial problems for food waste at schools: Overproduction, lacking communication between schools and caterers, no control of the portion size, unattractive meals for pupils.
- (4) Measures against food waste are part of a sustainable school catering and need in an optimal manner professional catering commissioners to initiate, support and put the measures into practice.
- (5) Criteria for a low-waste and environmentally friendly catering should be part of tenders.

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>> options for action



➤ Analyzing surveys





- (1) households/consumers tend to underestimate their amount of food waste.
- (2) largest share of food waste: perishable foodstuffs, like fresh fruits and vegetables and baked goods.
- (3) young people are less careful with foodstuff and produce more food waste than older people. The young generation is therefore the relevant target group for awareness-raising campaigns.
- (4) Main driver is (beside the age): buying of more foodstuff than required. Customized and moderate shopping is the main starting point to reduce food waste in private households.

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>> **options for action**



# options for action

(in discussion)

(politics)

support initiatives like food banks  
implement public campaigns

(organizations)

develop and refine recommendations  
create and expand food sharing activities

(companies)

improve communication between suppliers and customer  
use proved and cost-effective measures

(research)

find efficient reduction measures

(consumers)

rise awareness for food waste

# REFOWAS Homepage



[<https://refowas.de/en>]

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- Conference
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### Welcome

**Welcome** to the REFOWAS homepage - Reduce food waste: measures, evaluation frameworks and analysis tools as well as approaches for the sustainable use of food stuffs drawing in socio-ecological innovations. REFOWAS is an acronym for "Pathways to reduce food waste." We are happy that you are interested in our research project!

#### Current Information:

On the 14th of June 2019 an international REFOWAS Workshop will take place in Berlin. [Inform Yourself now!](#)

[Join now! Survey for school caterer! Follow this Link!](#)

- Interview-article in "forschungsfelder" edition 3 (Nov. 2018), [Link](#)
- The REFOWAS project is now official extended until end of November 2019
- REFOWAS results in "Wissenschaft erleben", see page 12/13, [Link](#)

#### Project partners



Project brochure (in German)



Ich suche nach ...



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# The German REFOWAS-Project

## REduce FOod WASTe

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