FOOD WASTE MONITORING AND ENERGY SAVING POTENTIAL

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European Parliament claims a reduction of food waste by 50% until 2030. The first national study on food wastage in Germany has been published in 2012 (Hafner, G. et al. 2012: Determination of discarded food and proposals for a minimization of food wastage in Germany). This study covers food processing, trade and consumption (as well as agriculture) as important elements of the value chain. A second and more detailed study on food waste has been carried out in the Free State of Bavaria investigating the complete value chain - agriculture, food processing, trade and consumption (Hafner, G. et al. 2014: Food Losses and Throw-Away Quota in Free State of Bavaria). An additional study examining energy saving potential by the reduction of food wastage has been carried out for Bavaria from 2013 till 2015 – results are published in (Hafner, G. et al. 2015: Potential of Energy Savings by avoiding Food Wastes). The newest study elaborated at University of Stuttgart with the title: "Energy-efficient kitchen - energy saving through resource efficiency in the Bavarian out-of-home catering" will be finalized in February 2018.

In order to achieve reduction objectives, monitoring of avoidable food waste is essential. A starting point for reduction goals has to be defined and effects resulting from measures for an optimization of food management along the value chain have to be documented.
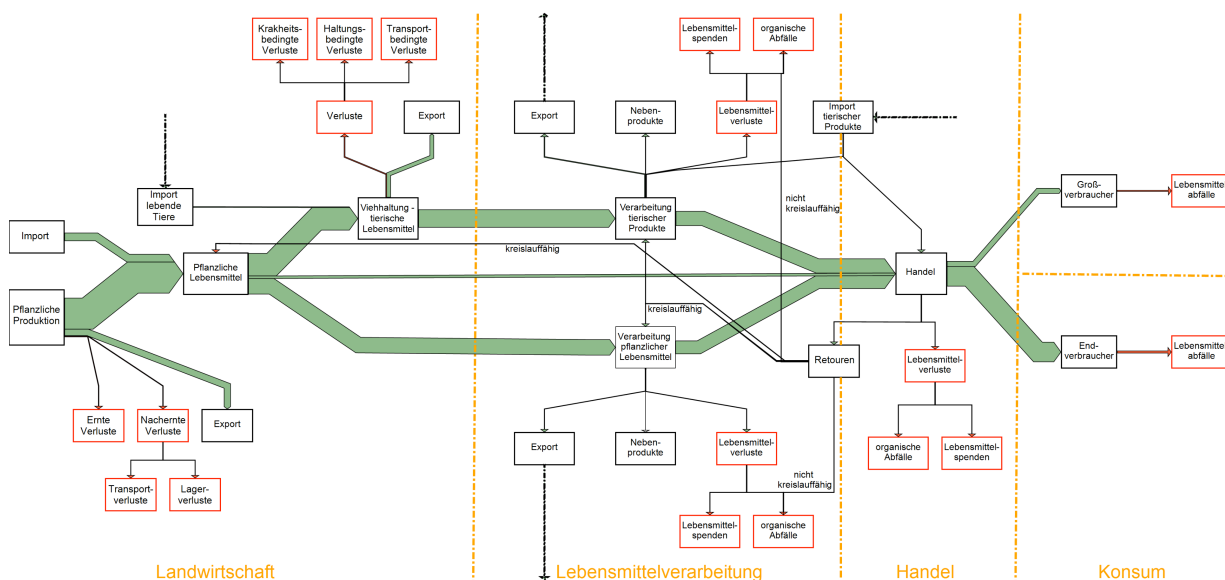
Lebensmittelströme

figure 1: flows of food in agriculture (food production), food processing, food trade and food consumption

The very first large scale monitoring of food waste is currently implemented in the Free State of Bavaria - starting in May 2017. This long term monitoring is embedded in a bundle of measures, elaborated and carried out within the initiative "We Save Food", initiated by the Bavarian Ministry for Food, Agriculture and Forestry.

The monitoring of food losses in Bavaria is basing on a methodology developed at University of Stuttgart within a huge number of R&D-projects since 2010. Starting point for this monitoring is resulting from the above mentioned study (Hafner, G. et al. 2014). These outcomes represent first benchmarks, which are now dynamically and continuously adapted.

Tools for monitoring are:

- "Stuttgart Methodology" (described in Hafner, G. et al. 2013 and Hafner, G. et al. 2016),
- RESOURCEMANAGER FOOD (RMFood), (a hardware-software-tool) and
- round tables with experts.

RMFood is a software, developed at TTI – Technology Transfer Initiative at University of Stuttgart (www.tti-resources.de), which is used for monitoring food wastage on consumption level. First developed as hardware-software-tool (computer or tablet with software, linked to a balance) for large kitchens (canteens, hotels, schools, hospitals, universities etc.) there is meanwhile an online-app available for free, which can also be used by private households, trading companies, food processing companies and craftsmen companies (e.g.bakeries). Apart from quantity of avoidable food losses for each food category, also energy demand, climate relevant emissions and monetary effects of these food losses are documented - as well as origin and reasons for wastage of food. All collected data is summarized in regular monitoring reports.

figure 2: RESOURCEMANAGER FOOD – scheme

Within the oral presentation the methodology, as well as results from this first large scale monitoring of food waste in Germany, will be presented. Energy aspects will be included.