Less Food Waste, More Recycling
- Nutrients Reuse at the Turku University Campus

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INTRODUCTION & AIM

The food chain is usually described as “from field to fork”. That is only a half of the truth, because the whole food system needs inputs. In the food and feed production, we use a lot of chemical fertilizers, while loosing a lot of nutrients through wasting and food overproduction. In linear food system, we waste not only food but also the resources and, in addition, cause emissions. In the sustainable food system, we should also talk about recycling nutrients.

The aim of the Less waste, more Recycling (LeRe) -project was to introduce a pilot of how to prevent food waste and reuse locally the nutrients of food waste in a sustainable way.

METHODS

In the empirical LeRe -pilot we had two methods (Fig.1):

1) **Less Waste:** Reduce food waste by campaigns and communications within the food sector.
2) **More Recycling:** Support circular economy by recycling the nutrients by urban farming.

The LeRe -project was implemented at the Turku University campus. We demonstrated the whole recycle of nutrients by composting the food waste from a campus restaurant, utilizing the nutrient rich compost soil in urban farming.
A group of students organized a farming cooperative.

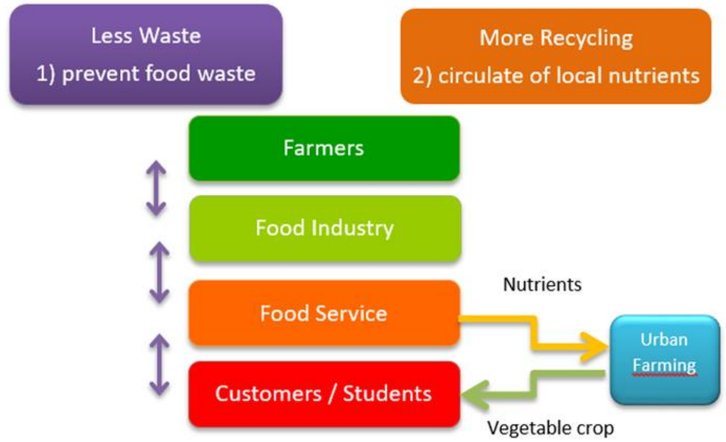

Figure 1. The idea of Less waste, more Recycling (LeRe) -pilot project.

RESULTS

1) Prevent food waste: By campaigns we could cut leftovers by 30% during the theme weeks. The food waste reduced was 110 kg/week (5 500 kg/a), which includes the following nutrients: N 35 kg/a and P 4 kg/a. Reducing 30% of the food wastes at **all Turku University campus student restaurants** could reduce waste by 550 kg/week and 27 500 kg/a (nutrient content of this N 185 kg/a; P 20 kg/a). This amount of nutrients could cover the nutrient requirement for about two hectares of wheat.

2) Circulate of local nutrients: We composted food waste in three 550-liter express composters. Approximately 7.5 m^3 of compost was generated during one year (nutrient analysis: N 7.6 kg/m^3, P 1.4 kg/m^3 K 3.0 kg/m^3). The compost soil was used by urban farmers on an allotment (10 m^2), where the group of students organized their farming cooperative (Fig. 2). The urban farming became very popular among the students. The development of urban farming skills by student cooperation was impressive. By taking care of vegetables and fruits, the work became concrete and the appreciation of food increased substantially among the young farmers.

CONCLUSIONS

Modern agriculture is considered one of the major causes of environmental pollution, including large-scale nitrogen- and phosphorus-induced environmental change (Rockström et al. 2009). Present options to manage bio waste are expensive in ecological and economy point of view. Still, we utilize very little of the nutrients of food waste or loose in agricultural production in Finland.

According to our findings, there is a great potential in the recycling the nutrients of food waste and loose, in a sustainable way. Better use of circulating nutrients could reduce nutrient run-off and eutrophication of waterways. In addition, we could reuse the nutrients of the food-waste more effectively and improve local food security.

Urban farming has a positive and remarkable impact on the appreciation of food. Using the nutrients of campus restaurants, this food waste project has shown in an empirical way the importance of nutrients for the growth of vegetables and other plants.

Understanding the role of nutrients in the current linear food system is not self-evident to the majority of consumers or young people. During the project, we have come to the conclusion that raising the appreciation of food is of great importance for the whole food system in terms of reducing food waste.

Figure 2. Urban farmers on the allomnet.

References

Rockström, J., Steffen, W., Noone, K., Persson, A., Chapin Iii., F.S., Lambin, E.F. A safe operating space for humanity. 2009. Nature 461, 472-475.

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