

9th International Conference on

Global Warming, Climate Change and Pollution Control & Recycling : Reduce, Reuse and Recycle

December 5-6, 2018 | Vancouver, Canada



Sirpa Kurppa

Natural Resources Institute Finland(Luke), Finland

Challenged nutrient recycling in the animal based protein system - applying the nutrient footprint method to the beef production and consumption chain

The nutrient footprint is an indicator which combines the number of nutrients captured for use in the production chain and the percentage of nutrients used either in the primary product or in the entire system (primary+secondary products). We defined N and P flows associated with the Finnish beef production and consumption chain and tested the nutrient footprint method using data from a Finnish beef Life Cycle Assessment study. Each 1000kg of Finnish beef consumed requires 1700kg N and 189kg P during its life cycle. The percentage of virgin nutrient is more than 50% for N, but only 25% for P. Nutrient use efficiency in the primary product and the entire system is 1% and 47%, respectively, for N and 0.2% and 74%, respectively, for P. The most nutrients were lost during wastewater treatment. Apart from wastewater treatment, NUE (P) was lowest in the food consumption and processing phases. In the processing, P was lost in the body parts (skull, brain, spinal cord and vertebrae) which are incinerated as class 1 risk materials of TSEs. In the food-processing phase, 28% of animal N and 56% of animal P ends up in the secondary products, especially animal skin (14% of animal N and 1% of animal P). In transition towards a sustainable nutrient performance in protein production and consumption, it is essential to define identify the hot spots of nutrient leakage in order us to be able to close those and to improve protein economy.

Biography

Kurppa Sirpa, PhD, Research Professor in Luke Finland. Research topics and work description: Environmental impacts of food production and services, an integrated food and environmental policy, integrated product policy, environmental awareness and design, circular economy, industrial symbiosis, resilience. Special competence: agroecology, the ecology of food systems, integrated and sustainable food production, environmental assessment, life cycle assessment (LCA), eco-design. At present, a Deputy Director of the ScenoProt-Novel protein sources for food security (2015-Present) and leading research on the sustainability of green growth in Arctic Finland. She has studied and worked in Scotland, California, Canada BC, and New Zealand.

sirpa.kurppa@luke.fi

Notes: