

5S4b Waste reduction and novel resources for sustainable production of safe food or feed

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Currently, about 35% - 50% of the world agri-food production is not consumed and wasted in the form of organic residual streams. In nature, such organic food waste is ultimately recycled to usable molecules, nutrients or microbial biomass by some specific or combined activities of microorganisms. Using nature as inspiration, microbial activity offers the possibility to convert side streams from the agri-food industry or natural resource into valuable components for food, feed or chemicals.

Furthermore, alternative and novel protein sources are urgently needed to meet the increasing demand for proteins to feed the world's growing population. Traditional meat production requires a lot of space and natural resources which is, to a certain extent, also the case for plant-based protein. Alternative protein sources, such as insects, macro- and micro-algae, fungi, yeasts and protein-rich grains and legumes can contribute to the increased protein demands and in addition offer a more sustainable and circular supply chain. Wageningen University & Research is investigating the potential of alternative protein sources for human food and animal feed. In the transition to a circular food system many governance challenges may arise related to the novel protein sources. Questions that should be answered are for example; how can novel protein sources contribute to a circular food system? What kind of transitions are needed for this?

Possible protein transition routes do not only depend on technological possibilities and regulatory challenges but are also faced with transitions by social and appreciating initiatives. All these aspects are important in the different stages of the production or supply chains of novel proteins and will be addressed in this session. Aspects like, food or feed safety, consumer acceptance, use of residual streams, optimal production and processing of novel proteins will be discussed.

Researchers on microbial conversion, waste reduction and novel protein sources in relation to a circular food system are invited to submit their abstracts to this session. Governance challenges related to food or feed safety, consumer acceptance, use of residual streams, optimal production, processing of novel proteins need to be addressed in the presentations.