

Project description "Organic Pollutants in Compost and Digestate in Switzerland"

Project organic pollutants of compost and digestate in Switzerland Composting and digestion is of considerable ecological and economic importance in western countries. In Switzerland, approximately 700'000 tons of organic residues are yearly processed and recycled as compost and digestate. Hazardous substances such as organic pollutants and heavy metals may be introduced into compost and digestate by contamination of organic residues. The most important pathways for contamination of residues with organic pollutants are atmospheric deposition and direct application of pesticides. For most contaminants, data are insufficient for safety systems and risk assessment of compost and digestate application on soils. Potential impacts caused by organic pollutants are the main reasons for controversial discussions on sewage sludge application on agricultural soils in Europe and its prohibition in Switzerland. Similar consequences must be avoided for compost and digestate with regard to their high ecological and economic importance. Within this context, the project 'Organic pollutants in compost and digestate in Switzerland' has been launched. It is operated by the Swiss Federal Institute of Technology, Lausanne, EPFL and Agroscope Reckenholz-Tänikon Research Station ART, Zürich in close collaboration with several national and international partner laboratories, the Swiss Agency for the Environment, Forests and Landscape (SAEFL), the Swiss Federal Office of Energy (SFOE), the Swiss Federal Office for Agriculture (SFOA), and the Swiss Association of Composting and Methanisation Plants.

The project includes the following topics:

- Literature review on actual knowledge concerning organic contaminants in compost and digestate.
- Adaptation of methods for analysis of organic pollutants in compost and digestate.
- Analysis for PAHs, PCBs, dioxins, pesticides, phthalates, polybrominated flame retardants, polychlorinated alkanes in selected samples of compost and digestate Analysis of the fate of selected organic pollutants during composting and digestion.
- Ecotoxicological risk assessment for application of compost and digestate based on data from literature.
- Determination of ecotoxicological impacts caused by application of compost and digestate on the basis of tests with soil organisms and micro-organisms.

The aim of the project is the determination of the actual contamination of compost and digestate with organic pollutants considering the composition of organic residues (urban, rural origin, type of organic waste), the processes during composting and digestion and of ecotoxicological impacts caused by application of compost and digestate as well as the elaboration of recommendations concerning:

Minimisation of the contamination of compost and digestate as well as soils treated with the latter, Quality management on compost and methanisation plants, risk assessment and legal regulations as well as sustainable management of organic waste considering particularly problems related to organic pollutants.

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