



# Plastics in biowaste collections

- > Food packaging and plastic bags are often improperly disposed of with biowaste and impair the quality of separate collection.
- > These plastic fragments cannot be removed completely from fermentation or composting plants. As a result, plastics enter soil via compost and digestate and pollute the environment.

## From biowaste collection to compost and digestate

Biowaste includes biodegradable waste, such as kitchen and garden waste or tree prunings and grass cuttings. Municipal authorities collect biowaste separately. It is subsequently delivered to composting or fermentation plants. Compost is then made in composting plants, and digestate and biogas in fermentation plants. Energy is produced from biogas, and both the compost and the digestate are used to fertilise and improve soil in agriculture and horticulture.

## Compost and digestate contain plastics

Plastics are often wrongly disposed of in the biowaste collection, contaminating compost and digestate. Food packaging and plastic bags are most commonly found in the biowaste collection. A study<sup>1</sup> commissioned by the FOEN shows that the amount of contaminants (including plastics) in biowaste in 2018 was three to ten times higher than back in 2000/2001. A stricter limit for plastics in compost and digestate has applied since 2016.

Example of biowaste contaminated with plastics in a biowaste container



## Where the plastics in biowaste come from

The purity of compost and digestate varies markedly depending on its origin: compost from garden waste generally has a lower plastic content than digestate from mixed collections, such as garden and kitchen waste or food scraps. In addition, studies<sup>1</sup> show that the amount of plastics in compost and digestate tends to be higher in urban areas than in suburban or rural areas.

The general trend points towards a desirable, increased collection of biowaste. The undesirable introduction of plastics not only comes from unintended misthrows, lack of knowledge of proper waste disposal and laziness, but is also caused deliberately.

Another problem is presented by products – mostly plastic bags – of biodegradable plastics. Since not all plastic products which are described as biodegradable can be fully degraded in composting and fermentation plants, their residues enter the compost or digestate (see *“Biodegradable plastics” factsheet*). In addition, confusion

with normal plastic products or poorly degradable “bioplastics” is a further major reason for the contamination of biowaste collections.

## Plastics in biowaste pollute the environment and lead to additional costs

At present, contaminated biowaste has to undergo complex and cost-intensive processing to remove the plastics. Nevertheless, not all plastics can be removed, so that they enter soil together with compost and digestate. Contaminated biowaste is therefore one of the biggest sources of plastics in soil. The FOEN estimates that more than 800 tonnes of plastics a year end up on and in the soil because of contaminated biowaste. The plastic particles are largely immobile in soil and, according to estimates, remain there for as much as several hundred years before degrading (see *“Soil” factsheet*). Compost or digestate exceeding the levels of plastic permitted by law have to be incinerated, which is a waste of resources and also leads to additional costs.

### Possible measures

Reduce the input of plastics as far as possible using existing measures (e.g. stricter limit for plastics in compost and digestate). The most important other measures are:

- **Conduct regular checks** (by cantons and the industry) **on the quality of biowaste** so that limits are complied with.
- **Raise awareness among the population**, e.g. not to use any kind of plastic bags to collect biowaste.
- **Work together with transport companies** and systematically reject biowaste containing high levels of plastic.
- **Use technical processes to remove contaminants** before recycling.
- **Further develop technologies** for the detection of contaminants in biowaste, e.g. directly on the collection vehicle.

<sup>1</sup> ZHAW/FHNW 2018: Lebensmittelabfälle in Schweizer Grüngut (in German including summary in English)

## Further information

- Bioplastics – are they degradable?  
(FOEN dossier in German, French and Italian)
- Analyse von Fremdstoffen in Kompost und festem Gärgut (study in German)