**Biowaste valorisation decision tool**

**Developed by the City of Apeldoorn**

### Short Introduction

The City of Apeldoorn seeks to develop and pilot valorisation options for biowaste from public spaces such as leaves, grass, and prunings and involve key stakeholders in this process. In preparation of pilot demonstration actions for the innovative reuse of biowaste from public spaces, the City of Apeldoorn developed a decision tool that connects the biowaste from public spaces with the possible users in the circular biobased economy.

This decision tool enables Apeldoorn to decide on how to select, collect, store and treat biowaste to be able to deliver optimal biowaste to different users (e.g. producers of bokashi, fibre or chemical industry). Main emphasis is on the possibilities of supplying biowaste for upcycling, applications that are beyond biogas production. By connecting the desired properties from industry with the biowaste handling of Apeldoorn, the influence of different decisions becomes clear.

The tool can also be used by industries that want to use biomass. This decision tree enables interested industries to discuss with Apeldoorn the optimal steps to obtain biowaste fit for their application (e.g. biowaste without impurities, with higher fibre strength). Currently the use of biowaste in industry is mostly limited to composting or biogas production. Understanding the relation between handling of biowaste and desired properties may result in opening up new opportunities for upcycling

**Target groups**

* Local Governments (public space maintenance, waste management, circularity management)
* Businesses using biowaste as raw material

**Keywords**

* #Guidance
* #Recover
* #Recycle
* Upcycling
* Connecting Apeldoorn to Industry

**Format**

·   Decision tree with report

### Deployment

The decision tree will be used to select the optimal biowaste collection, storing and pre-treatment for application in the different demonstration activities: the production of bokashi from leaves, the production of biochar, fibres and 3D printed composites from biowaste. In each case the requirements of the (industrial) stakeholders will be considered and optimal biowaste supply will be designed.

### Replication

The transition towards a circular, biobased economy requires a large input of biomass. Besides wood and non-food crops other sources of biomass will be needed to replace fossil oil based materials. Without proper care in collection, storing and pre-treatment alternative biomass sources as biowaste are not suited for most industrial applications. This decision tree will connect the knowledge of owners of biowaste with the knowledge of biobased industries. Any city that would like to increase the value of the biowaste could use this decision tree to start the discussion with industry.

### Methods

Several experts in collection and treating of biowaste and in industrial applications of biowaste within Wageningen Research and the City of Apeldoorn were contacted to generate a decision tree. Labscale tests were performed to obtain the composition and technical properties of biowaste from public spaces in Apeldoorn. During the demonstration activities the decision tree will be further refined using the results from the production trials on larger scale.

**Barriers**:

The ideas of using biowaste in industry are scattered between very large scale applications and small scale initiatives from starting entrepreneurs. The decision tool focusses mainly on added technical value of biowaste, however upcycling of biowaste may also be achieved based on positive acceptance of biobased products by the general public without added technical value

### Additional Information

*For example:*

* *Contact points*
* *Next steps*
* *References*

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