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<i>Institution</i>	Deutscher Verband für Landschaftspflege e.V. (DVL, Landcare Germany)
<i>Position</i>	Project leader of MULLE
<i>Field of work</i>	Biogas from landscape management material Project <i>MULLE</i> : "More landscaping material in existing biogas plants - multiplication of field-proven solutions for energy recovery of untapped potential from landscape management"
Experience	
<i>About the feedstock</i>	Landcare Germany (DVL) is the umbrella organization of at the moment 155 Landcare Associations (LCA) in Germany. These regional non-governmental associations link nature conservation groups with local farmers and local communities. Therefore the experiences about the material from landscape conservation and maintenance work is wide-ranging.
<i>Processing chain</i>	<p>In the <i>MULLE</i> project herbaceous material for biogas production was analyzed and all steps of the processing chain have been assessed.</p> <ul style="list-style-type: none"> • harvesting and transport : e.g. with Forage Harvester (shredding from 1 to 3 cm) or Short-cut loading wagon (shredding from 3 to 20 cm), silage bales (to store the biomass on-site) • conservation: to store the biomass (e. g. to feed the plant continually) it has to be conserved by silaging • material processing – shredding and pulping: to enlarge the surface <p>Rule of thumb: The later the landscaping material is conditioned, the higher is usually the use of resources.</p> <p>The step of shredding and pulping is the most important step. The enlargement of the surface by size reduction allows the use of a wider range of feedstock materials, increases the biogas yield and improves the mixing and pumping capacity and utilization of digester space.</p>
<i>Context</i>	<p>Following variables affecting the economy of the energetic use of landscape material:</p> <ul style="list-style-type: none"> • distance of the area to the biogas plant • area size: small areas are difficult to manage • harvesting machinery • processing technology / shredding (10 – 20 cm length) / chippers (2 - 3 cm length): the smaller the better for the biogas plant and the greater the biogas yield • material quality: e.g. material with shrubs like blackberry or sloe, have a high wood content or material from floodplains has a high mineral content • Energy crops: The higher the price of cultivated energy crops, the more likely the use of landscaping material is economical. Corn and

grain are available actually always in this day and age, that's just a question of price, transport route etc.

Related formalities The Renewable Energies Act (EEG) of 2014 eliminates the additional remuneration for renewable resources. Whether maize, clover grass or landscaping material - you will receive per kilowatt hour, only the basic salary to a maximum of 13.66 cents, with a rated power of 150 kW.

The Biowaste Ordinance unsettles the biogas plant operators, so that partly they do not dare to use regionally accumulated landscaping material, in particular green cuttings, in the biogas plant. Loppings (green cuttings) from public and private areas are declared as waste (EEG/5.1), landscaping material from nature conservation and landscaping work not (BiomasseV Annex 3/5). There are uncertainties on the part of operators and authorities and many operators currently do not use these feedstocks.

Wider insight The utilization of herbaceous material from typical landscape elements, like pastureland, marsh areas or grassland for biogas production competes with the use of this material as feed or litter for stables. Landcare Germany (DVL) makes sure that the use of this kind of biomass for livestock farming has priority over the use of biogas.

Messages

The main obstacle in the utilization of landscape material is the German Waste Management Law, because it declares green cuttings as waste. Biogas plants for landscaping material, e.g. from sports grounds etc., require different permission and must meet many requirements. If this problem would disappear, more biogas plant operators would declare their willingness to ferment green cuttings.

In an amendment to the EEG the focus should lie on a remuneration for the energetic use of landscaping material.

Furthermore to promote the use of landscape material in biogas plants test for harmful substances should be done in the digestate and not in the feedstock. At present, the substrate is not tested for hazardous substances. The feedstock is divided into groups e.g. corn as a renewable resource is not hazardous. Green waste is organic waste and the waste legislation must be complied. Whether the substance is actually contaminated, e.g. corn along a highway, is not examined.

Also the provision of cheaper shredding technologies, like mobile shredding solutions, could make the material more attractive for biogas plants and increase its utilization.

Contact information

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Interlink

MULLE project & Advisory folder "From landscaping material to biogas"/DE

Photo Gallery



Picture 1: Landscaping material - With special equipment the farmer mows steep mixed orchards in Lower Franconia; Source: Peter Roggentin



Picture 2: Colmberg and the hamlet Meuchlein receive heat from this biogas plant, which is gaining around 30 % of its energy from material of wet meadows of the adjacent bird sanctuary; Source: DVL



*Picture 3: Mulched green area in the district of Biberach - no use of the material;
Source: Hans-Peter Seitz*