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Cantonal Sustainable Manure Potential (PJ/year)

<table>
<thead>
<tr>
<th>Potential Range</th>
<th>Cantons Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0 – 0.5</td>
<td>15</td>
</tr>
<tr>
<td>0.5 – 1.0</td>
<td>21</td>
</tr>
<tr>
<td>1.0 – 1.5</td>
<td>12</td>
</tr>
<tr>
<td>1.5 – 3.0</td>
<td>4</td>
</tr>
<tr>
<td>3.0 – 6.0</td>
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Publication
Thees, O.; Burg, V.; Erni, M.; Bowman, G.; Lemm, R., 2017; Biomassepotenziale der Schweiz für die energetische Nutzung. Schlussbericht SCCER Biosweet, WSL Ber. 57: 299 S.

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Biomass Potentials for Energetic Use
Assessment of Swiss Biomass Resources
### Current Domestic Biomass Potentials in Switzerland

<table>
<thead>
<tr>
<th>Feedstock Definition</th>
<th>Theoretical Potential (T)</th>
<th>Sustainable Potential (S)</th>
<th>Additional Potential (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wood from landscape maintenance</strong></td>
<td>9.4 / S 4.8 / A 2.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Industrial bio-waste</strong></td>
<td>13.6 / S 2.7 / A 0.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Organic household garbage</strong></td>
<td>6.0 / S 3.9 / A -2.1*</td>
<td></td>
<td></td>
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<tr>
<td><strong>Green waste</strong></td>
<td>4.3 / S 5.8 / A 3.3*</td>
<td></td>
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</tr>
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<td>48.8 / S 26.9 / A 24.3</td>
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<td>24.0 / S 7.6 / A 0.0</td>
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<td>107.5 / S 26.1 / A 9.0</td>
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### Feedstock Definitions of Non-Woody and Woody Biomasses

**Sewage sludge**: Organic matter from central water treatment plants.

**Animal manure**: Liquid manure and dung from livestock.

**Green waste**: Separately collected biogenic waste from households as well as non-ligneous waste from public landscape maintenance.

**Organic part of municipal waste**: Organic fraction within household and residential refuse.

**Industrial waste**: Organic residues from food industry, catering, retailers, paper production, tobacco industry, pharma-industry and textile industry.

**Agricultural crop by-products**: Residues left on field after regular harvests and intermediate crops.

**Forest wood**: All types of forest wood designated exclusively for energy purposes.

**Waste wood**: Wood from buildings renovation, furniture, pallets.

**Industrial wood residues**: Production waste from companies that treat and process raw timber.

**Wood from landscape maintenance**: Ligneous fraction from public landscape maintenance and open field.

**Organic household garbage**: Organic fraction within household and residential refuse.

**Green waste**: Separately collected biogenic waste from households as well as non-ligneous waste from public landscape maintenance.

**Sewage sludge**: Organic matter from central water treatment plants.

**Animal manure**: Liquid manure and dung from livestock.

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*Numbers include shift through improved sorting.
One Consistent Approach for All Biomass Resources

The study covers all domestic woody and non-woody biomass in Switzerland using the same scientific approach:

Calculations based on survey data provide the theoretical gross potential. Then, technical, environmental, economic, legal, and political restrictions are considered to estimate the sustainable potential for energetic use. Finally, the already used potential is subtracted to calculate the remaining available bioenergy potential.

The whole process runs at high regional resolution enabling results from local to national aggregation. Various scenarios reflect possible trade-offs and synergies until 2050.

### Significant Data for Planning and Allocation of Resources

The comprehensive data on all biomass resources, plus their characteristics, availability, usage, estimated costs and regional distribution support efficient decisions on technology development and deployment as well as on site location.

An optimized selection of the conversion technology and installation site for the sustainable biomass supply can significantly reduce the cost of the final bioenergy product. At the same time efficient usage of the biomass is ensured.

### Feedstock Definitions of Non-Woody and Woody Biomasses

- **SEWAGE SLUDGE:** Organic matter from central water treatment plants.
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