IEA Bioenergy Task 37 - Workshop: Biogas in the loop of recycling
Moss, Norway - April 19th 2012

Quality management of digestate in Switzerland
Introduction

Main objectives:

- Good quality digestate and correct use
- Confidence in digestate products
- Problem prevention

Some key events:

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>90’ies</td>
<td>Experiments on impact of digestate on soil and plants</td>
</tr>
<tr>
<td>2001</td>
<td>Law on fertiliser marketing &amp; guideline</td>
</tr>
<tr>
<td>2003-2006</td>
<td>Study on organic pollutants in digestate / influence of digestate on the environment, soil fertility and plant health</td>
</tr>
<tr>
<td>2010</td>
<td>Guideline on quality management of digestate</td>
</tr>
</tbody>
</table>
Motivations for a quality management

✓ Different products, different handling
✓ Correct use leads to a very positive influence on the soil

<table>
<thead>
<tr>
<th>Digestate</th>
<th>Liquid digestate</th>
<th>Solid digestate</th>
<th>Compost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Agricultural fertiliser</td>
<td></td>
<td>Recycling fertiliser</td>
</tr>
</tbody>
</table>
## Motivations for a quality management

<table>
<thead>
<tr>
<th>Quality guarantee</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Only high quality products on the market</td>
</tr>
<tr>
<td>• Improve soil quality &amp; plant health</td>
</tr>
<tr>
<td>• Confidence between producer and user</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Avoid risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Avoid negative impacts and bad reputation of digestate due to wrong utilisation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Improve understanding</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Monitoring and data collection</td>
</tr>
<tr>
<td>• Detection of gaps in actual knowledge</td>
</tr>
</tbody>
</table>
Organisation

VKS: Association of composting and digestion facilities
**VKS**
Verband Kompost- und Vergärwerke Schweiz
Association of composting and digestion facilities

**Goal:**
Improve market conditions for compost and digestate

**Actions:**
- Education – quality – control
- Coordination of projects
- Influence political decisions (law)
- Participation in the elaboration of the quality guideline

**Link:**
http://www.vks-asic.ch
Inspection commission - ARGE Inspektorat

Diagram:
- Canton
- VKS
- Inspection commission
- Controlling, consulting
- Digestate producer
- Digestate user
- Database (CVIS) Annual report
- Data collection

Law

Directives and guidelines
Inspection commission - *ARGE Inspektorat*

**Goal:**
To control the digestate producers

**Actions:**
- ✓ On demand of a canton or of an installation
- ✓ Visit of the installations, data collection (once a year or every two years)
- ✓ Update of the database (CVIS)
- ✓ Inform authorities (canton) about results

**Link:**
- ✓ [http://www.compospect.ch](http://www.compospect.ch)


**Laws and guidelines**

Two main guidelines:

- Positive list
- Quality guideline for compost and digestate

Laws
Guidelines

Positive list

List of substrates appropriate for AD

Divided in 6 classes:

- Communal collections
- Garden and landscape maintenance
- Industry and commerce
- Agriculture
- Process support
- Substrates for digestion in WWTP
Hygienic class

- **a) no problem**
- **b) attention required**
- **c) treatment and/or authorisation needed**

Recommended Temperature

- mesophilic / thermophilic

Type of authorisation

Descriptions & remarks

- high salt content, pH, odour risks…
Guidelines

Quality guideline 2010 for compost and digestate

Objectives:
- High quality products and correct utilisation
- Clear definition of products and application fields
- Prevention of problems
Guidelines

Defined products and main characteristics

Liquid digestate  Similar to liquid manure, but less odour, very good ammonium fertiliser

Solid digestate  Similar to solid manure, but less odour, very good ammonium fertiliser, increases organic matter in the soil

Compost  Improves soil structure and water regulation, resistance to erosion and from plant disease
### Guidelines

<table>
<thead>
<tr>
<th></th>
<th>Liquid digestate</th>
<th>Solide digestate</th>
<th>Compost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertiliser</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Soil conditioner</td>
<td>(X)</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

**APPLICATION FIELD:**

- Arable farming: X X X
- Horticulture indoor: X
- Horticulture outdoor: X
Guidelines

Quality standards take account of:

- Heavy metals
- Organic pollutants
- Foreign matter / impurities (*maximum content and diameter of plastic, glass, metal*)
- Hygienic requirements (*input criteria, retention time and temperature in the digester, how to avoid recontamination*)
- Physical and chemical properties (*dry/organic matter, pH, salt content, C/N, nitrate, nitrite*)
Guidelines

Utilisation and application:
- Which product for which utilisation
- Impacts on soil quality
- Period of application (seasonal, time of day and meteorological conditions)
- How much to apply
- How to apply (technology)
Perspectives

Long term experiments / «essais-vitrines»
• Tests of minimum 5 years
• Analysis of the long term effects of digestate under different conditions (soil, climate, crops):
  Nutrients, humus content, soil structure, disease suppression

Logo
Based on the guideline for compost and digestate

Training program
Establishment of a unified training and retraining programme
Thank you for your attention!