What to do with manure in the BSR
(Overview)

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27.8.2013

Baltic Manure – turning Manure Problems into Business Opportunities

Baltic Forum for Innovative Technologies for Sustainable Manure Handling
(EUSBSR Flagship project)

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Baltic Manure in a Nutshell

• Baltic Manure
  • is turning manure problems into business opportunities
  • improves knowledge about manure handling and use
  • stimulates technology development and marketing
  • gives policy recommendations
  • is the forum to bring together all stakeholders to improve manure handling and use
• Baltic Manure contributes to the overall strategic goal of the programme:
  • to make the Baltic Sea Region an attractive place to invest, work and live in

18 Partners

Total project budget: 3.7 million €
Duration 2010 - 2013
The project is partly financed by the European Union European Regional Development Fund.

Baltic MANURE

WP1 Management

WP3 Feeding, housing, processing, storage, spreading

WP4 Manure, soil, phosphorus

WP5 Sustainability (LCA)

WP6 Energy potential

WP7 Business innovation

WP2 Communication

Manure Business Forum

Manure Knowledge Forum

Manure Policy Forum

Eutrophication Context

Climate

Common Agricultural Policy

Current non-green Greening

Environmental legislation

Markets

Other legislation etc.

Multilocal waste waters 16%
Deposition 16%
Agriculture 51%

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Baltic Manure from Baltic Animals

- The Baltic Sea Basin is an area of intensive, and intensifying agricultural production.
  - 36 million units of cattle,
  - 67 million units of pigs, and
  - 190 million units of poultry in the region. (Gren, I.-M. et al., 2008: Cost of nutrient reductions to the Baltic Sea - technical report).
- Environmental problems and water eutrophication caused by manure based nutrient surplus in some regions.
Baltic Manure and Baltic Nutrients

- Manure nutrient value > 1 540 million €
  - 981 000 ton of Nitrogen x 1 €/kg = 980 million €
  - 281 000 ton of Phosphorus x 2,0 €/kg = 560 million €
  (BalticSea2020 report "best available technologies for manure treatment").

- 31 million ha -> 37 kg N and 9 kg P /ha agricultural land
  - Evenly distributed there would be no problem
  - Hot Spots around areas of high density animal units

- Imports of feed call for exports of manure/nutrients to obtain local nutrient balance
  - Animal production based on local feed differs from animal production based on imported feed

Nutrient balance in animal production - basics
Separation technology example

Example – slurry from 1 000 fattening pigs (Pellon separation technology)

<table>
<thead>
<tr>
<th>Manure or fraction</th>
<th>Volume m³</th>
<th>N kg</th>
<th>P kg</th>
<th>Spreading area needed, ha</th>
<th>Applied amount, m³/ha</th>
<th>Criteria for applied amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw slurry</td>
<td>2 000</td>
<td>7 400</td>
<td>2 200</td>
<td>147</td>
<td>14</td>
<td>P 15 kg/ha</td>
</tr>
<tr>
<td>Liquid fraction</td>
<td>1 750</td>
<td>3 151</td>
<td>175</td>
<td>18,5</td>
<td>94</td>
<td>N 170 kg/ha</td>
</tr>
<tr>
<td>Solid fraction</td>
<td>250</td>
<td>2 145</td>
<td>1 970</td>
<td>18,2</td>
<td>14</td>
<td>P 36 kg/ha every 3 year = P 108 kg/ha</td>
</tr>
</tbody>
</table>
Guidelines Baltic Manure (WP3):
Manure value chain - Benefit/Euro

Next Step: to expand the nutrient recirculation from Manure to all recyclable nutrient resources.
Example: Nutrients from different raw materials in Finland

<table>
<thead>
<tr>
<th>Raw materials</th>
<th>P</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manure</td>
<td>72 %</td>
<td>78 %</td>
</tr>
<tr>
<td>Biowaste and side products from food and feed industry</td>
<td>14 %</td>
<td>14 %</td>
</tr>
<tr>
<td>Municipal biowaste</td>
<td>3 %</td>
<td>5 %</td>
</tr>
<tr>
<td>Municipal sludge</td>
<td>12 %</td>
<td>4 %</td>
</tr>
<tr>
<td>Total</td>
<td>100 %</td>
<td>100 %</td>
</tr>
<tr>
<td>Total, t/a</td>
<td>24 100</td>
<td>128 100</td>
</tr>
</tbody>
</table>
Thank You!

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