Can liquid fraction of pig manure be a profitable N-fertilizer?

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Context

- MAP 4 to MAP 5: focus on P
- problem with low N/P fertilizers

impact on:
  - amount manure processed
  - fertilization cost

higher N/P? => liquid fraction of pig manure (LF)
Agronomic performance

- Cauliflower
  » Franky Coopman
Agronomic performance

- **Spinach:**
  
  fertilization (synthetic fertilizer)

- **Liquid fraction pig manure = good fertilizer**

<table>
<thead>
<tr>
<th>object</th>
<th>pig slurry</th>
<th>liquid fraction</th>
<th>$N_{\text{effective}}$</th>
<th>$N_{\text{tot}}$</th>
<th>$P_2O_5$</th>
<th>$K_2O$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ton</td>
<td>kg/ha</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>16</td>
<td>32(+95E)</td>
<td>53 (+95E)</td>
<td>21</td>
<td>35 (+247E)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>12</td>
<td>27</td>
<td>92</td>
<td>137</td>
<td>28</td>
<td>147 (+156E)</td>
</tr>
</tbody>
</table>

![Graph showing yield comparison](image)
Economic simulation

Model
- MAP 5
- P-classification: 40% in IV and 50% in III

**pig farmer**
6885 ton pig slurry

**pig slurry (PS)**
6.7 kg N
4.0 kg P205
6.5 kg K20

**liquid fraction (LF)**
4.7 kg N
0.95 kg P205
3.7 kg K20
82.5% of PS

**manure processing**
18 €/ton pig slurry

**manure separation**
7.9 €/ton pig slurry mobile
9 €/ton pig slurry

**pig farmer land**

**nearby land**
maximal N (170 kg/ha) and P via pig slurry and/or liquid fraction
Economic simulation

Reference scenario (PS)

pig farmer → manure separation → manure processing

pig farmer land → nearby land
Economic simulation

Liquid fraction scenario (LF)

pig farmer -> manure separation -> manure processing

pig farmer land -> nearby land
Economic simulation

Pig slurry + liquid fraction scenario (PS+LF)

+ mobile manure separation unit (PS+LF M) scenario
Economic simulation

Costs

- for 50 (20+30) ha maize
Economic simulation

Influence of crop

- for 50 (20+30) ha
Economic simulation

Influence of acreage

- for maize (20+x)
Economic simulation

Nutrients applied

- per ha maize
Conclusion

- Liquid fraction of pig slurry + pig slurry:
  - reduce total manure costs
  - delivers N, P, K and C to the soil
  - practical amount (ton/ha)

⇒ profitable fertilization strategy
Questions

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