PHOSPHORUS USE AND RECYCLING IN ORGANIC FARMING IN DENMARK

“Phosphorus a Limited Resource - Closing the Loop”, Malmö 28th October, 2016

Margrethe Askegaard, M.Sc. Agric., PhD
mga@seges.dk, SEGES Organic farming
**SWOT ANALYSIS FOR THE USE OF URBAN ORGANIC WASTES IN ORGANIC FARMING**

<table>
<thead>
<tr>
<th>Strengths:</th>
<th>Weaknesses:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Use of urban organic wastes corresponds with the Danish Resources Strategy for waste management</td>
<td>• Challenges the organic precautionary principle because urban organic waste may include toxic components.</td>
</tr>
<tr>
<td>• Promotes the EU target for increased use of wastes and recirculation in organic farming</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities:</th>
<th>Threats:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Promotes conversion to organic farming, especially in East Denmark</td>
<td>• Negative consumer reactions to meat and bone meal, or sewage sludge or related residual products</td>
</tr>
<tr>
<td>• Higher yields</td>
<td>• Detection of new problematic elements in accepted waste products</td>
</tr>
<tr>
<td>• Elevated Danish production of feed concentrates.</td>
<td></td>
</tr>
<tr>
<td>• Reduced carbon footprint</td>
<td></td>
</tr>
</tbody>
</table>
DO WE HAVE A PROBLEM WITH PHOSPHORUS DEFICIENCY IN ORGANIC FARMING?

- We don’t know!
- Organic farmers focuses on N, K and S as yield limiting factors – not P.
- The willingness to pay for P is relatively low.
- But we need to be much more aware of the P-supply to the soils, especially in the eastern part of Denmark.
- And organic agriculture need to get access to the available P sources now – before they all flow in to streams adding forbidden substances.
THE MAIN CHALLENGE:
THE GEOGRAFIC DISTRIBUTION OF P-SURPLUS IN DENMARK

DIFFERENT P-STATUS IN EAST AND WEST DENMARK

Distribution of soil test analysis (%)

Olsen-P (Pt) intervals

Sealand
Western Jutland
FARMGATE P-BALANCES 2007-2008

Organic dairy farms

Surplus (kg P ha\textsuperscript{-1})

Livestock units ha\textsuperscript{-1}
NITROGEN AND PHOSPHORUS APPLICATION IN ORGANIC FIELDS

Extract from fertilizer accounts 2013/2014 for organic farms. Include both own and purchased organic fertilizers.
POTENTIAL PHOSPHORUS RESOURCES

- Sewage sludge: Permuted
- Meat and bone meal: Not permitted
- Novogro: Permitted
- Source separated food waste private households: Permitted
- Green garden and park waste: Not permitted
- Biomasses from natural areas: Permitted
- Wood ash: Not permitted
- Fertigro: Permitted
- Protamylasse: Not permitted
- Food waste from retail and production: Permitted
- Roadside cuts: Permitted
- Biomass cuts from streams: Permitted
- Vinasse: Not permitted

Ton P per yr.
Thank you for your attention