Changes and current situation of plant production, agricultural land use and farming practices in Estonia

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The share of agriculture in GDP, %
The share of agricultural workers in total employment
Grain, potato, meat and milk production per capita (thous. kcal)

Back in 1920!

Klesment, 2008

Eesti Maaülikool
Estonian University of Life Sciences
Trade balance of agricultural products and food

**Graph showing the trade balance of agricultural products and food from 1993 to 2009.**

- The y-axis represents the trade balance in millions of euros (mln eur).
- The x-axis represents the years from 1993 to 2009.

The graph indicates a significant decrease in the trade balance, starting from a positive value in 1993 and ending with a negative value in 2009.
Average milk yield per cow, kg/year

Average milk yield per cow, kg

kg

0 1000 2000 3000 4000 5000 6000 7000 8000


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There are huge regional differences of changes in agricultural land use.
Regional differences of changes in land use are caused beside socioeconomic alteration by pedoclimatic conditions. Map of soil quality (100-point scale).
Decrease of agricultural land depending on the soil quality

Agricultural land use has declined most of all in the rural municipalities located in the regions with low fertility soils.

\[ y = -2.5366x + 148.41 \]

\[ R^2 = 0.3922 \]
Cultivation area of cereals

thous. ha


Mixed grain
Legumes
Oats
Spring barley
Spring wheat
Triticale
Winter wheat
Rye
Cultivation area of oilseed rape
Crop yields (national average)

cereals, herbage

Cereals  Herbage  Potato

WWW.EMU.ee
Eesti Maailikool
Estonian University of Life Sciences
Crop productivity and fertilisation

Grain yield of cereals in Europe in 1998-2001

\[ y = -0.0004x^2 + 0.3389x + 10.298 \]

\[ R^2 = 0.8 \]

NPK, kg/ha

dt/ha
The use mineral and organic fertilizers

- N
- P
- K
- Sõnnik / organic fertilizers
Active balances of nitrogen, phosphorus and potassium of arable soils

If total balances of NPK are calculated as the difference between total input and the removal of nutrients with harvested products, then active balances of nutrients are calculated based on the plant available inputs.
Active balances of nitrogen, phosphorus and potassium for different field crops as an average for 2001–2003 in Estonia.

Agricultural producers can ensure maintaining of soil fertility only in potato cultivation.

The most negative active nutrient balance is for forage crops.
System “earth” is balanced
Estonian agricultural greenhouse gases emissions in 2003 were 732 Gg CO2 in total.
Methane emission


\[ 41\% \quad 23\% \quad 37\% \]
Are the small farms history?

Agricultural householdings - change compared to previous year

Agricultural land - change compared to previous year
Distribution of agric. land between size classes, %

- <20 ha: 13%
- 20...100 ha: 18%
- >100 ha: 69%
Farming (in 2008/2009)

Distribution according to the area payments (appr. % from total subsidized area 850 thous. ha)

- Conventional 35% (extremely variable practices)
- Environmental-friendly production 55%
- Organic 10%
Organic farming

The chart shows the growth in the number of organic farms and the total area under organic farming from 1999 to 2009. The number of farms has increased significantly, from a few in 1999 to over 1500 in 2009. The area under organic farming has also grown, with a notable increase in the late 2000s.
Share of organic farming %

- 1999
- 2000
- 2001
- 2002
- 2003
- 2004
- 2005
- 2006
- 2007
- 2008
- 2009

%
In 2004

Share of organic area, %

- 10 to 79.4 (33)
- 6 to 10 (19)
- 4 to 6 (22)
- 2 to 4 (35)
- < 2 (56)
World TOP 10: in 2007, share of organically farmed area %

Source: FiBL, IFOAM, SOEL 2007-2009
## Share of organic animals, %

<table>
<thead>
<tr>
<th></th>
<th>Cattle</th>
<th>..dairy cows</th>
<th>Pigs</th>
<th>Sheeps</th>
<th>Horses</th>
<th>Poultry</th>
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<tr>
<td>2003</td>
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<td>17.5</td>
<td>9.8</td>
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<tr>
<td>2004</td>
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<td>0.1</td>
<td>26.9</td>
<td>18.5</td>
<td>0.2</td>
</tr>
<tr>
<td>2005</td>
<td>4.7</td>
<td>2.7</td>
<td>0.1</td>
<td>33.2</td>
<td>25.7</td>
<td>0.3</td>
</tr>
</tbody>
</table>
Share in product volumes?

Survey in 2007

- Grain 1.3%
- Potato 1.3%
- Vegetables 0.4%
- Rapeseed 0.1%
- Milk 2.2%
- Meat 1.5% (pork 0%, poultry 0%, beef 5.9%, sheep 23.8%)
- Eggs 0.2%
What knowledge is missing?

- Soil tillage (how much minimum or no-tillage?)
- Manure systems
- Farm level real production intensity
- FADN collects (only) monetary values

What we have

- Site-specific data, soil maps (digital format 1:10,000)
Tänan tähelepanu eest!

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• MTT Agrifood Research Finland - Agricultural Engineering
• Estonian University of Life Sciences

Project home page is at http://enpos.weebly.com/

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