Economic impact of feed autonomy and associated ecosystemic services in a mixed Limousin cattle and poultry farm in Belgium

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## 1 – Technical & economic performances of on-farm produced fodders

<table>
<thead>
<tr>
<th></th>
<th>Grazed pasture</th>
<th>Alfalfa - dactyl</th>
<th>Immature cereals-protein crop</th>
<th>Forage rye</th>
<th>Corn silage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total costs (€/ha)</strong></td>
<td>946</td>
<td>1503</td>
<td>1194</td>
<td>676</td>
<td>1580</td>
</tr>
<tr>
<td><strong>Production (kg DM/ha)</strong></td>
<td>8 500</td>
<td>12 792</td>
<td>11 400</td>
<td>8 500</td>
<td>17 100</td>
</tr>
<tr>
<td><strong>Cost price (€ /100 kg DM)</strong></td>
<td>11,13</td>
<td>11,75</td>
<td>10,47</td>
<td>7,95</td>
<td>9,24</td>
</tr>
</tbody>
</table>

### Nutritional value

- **Energy content (VEM/kg DM)**: 995, 768, 750, 783, 915
- **Energy (kVEM/ha)**: 8 458, 9 824, 8 550, 6 656, 15 647
- **Crude protein content (g/kg DM)**: 189, 159, 108, 105, 77
- **Crude protein (kg/ha)**: 1 607, 2 039, 1 231, 893, 1 317

### Economic value

- **based on energy (€/kg DM)**: 0,05, 0,04, 0,04, 0,04, 0,05
- **based on protein (€/kg DM)**: 0,21, 0,17, 0,12, 0,11, 0,08
- **Total value per kg DM (€)**: 0,26, 0,21, 0,16, 0,15, 0,13
- **Total value per ha (€)**: 2 174, 2 714, 1 770, 1 306, 2 218
- **Net margin per ha (€)**: 1 228, 1 211, 576, 630, 637

➤ Importance of producing fodders that are rich in protein
➤ Grazed pasture is a first-choice feed
2 – How animals valorized the on-farm produced fodders?

Growing young bulls on grass

Substituting soybean by protein pea in poultry rations

Chickens « Ross »

Protein pea feed: 78.2 g/d
Soybean feed: 80.5 g/d

Average daily gain: 1.32 kg/day

Chickens « Redbro »

Protein pea feed: 52.2 g/d
Soybean feed: 51.7 g/d

0.25 €/kg DM
0.29 €/kg DM

⇒ It is possible to self-produce technically and economically performant rations
3 – How were the environment and the product quality affected?

1. The carbon content in grassland soils increased with grassland age

2. The quality of meat in terms of PUFA content (polyunsaturated fatty acid) increased with the number of grazing days before slaughtering

3. The chickens’ feed characterized by a lower N content, such as the protein pea-based feed, resulted in lower N contents in chicken droppings.
Conclusions

Feed autonomy
- can successfully support the **transition** of livestock farms **toward agroecology**
- offers **nutritional benefits** to the consumer by relying on grasslands
- is favorable to the **societal acceptance of meat production**

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