An empirical study of strategies for organic dairy farms in Austria

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Map of Austria
Economic strategies in dairy farming

- **High-Output**
  - Decreasing costs (fix costs) through increasing milk yield per farm
  - Increase of milk yield per cow and/or farm growth
  - High level of inputs

- **Low-Input**
  - Decreasing costs through decreasing inputs (less technology, concentrate, ingredients and working units)
  - Grassland based
  - Leads to reduced milk yield per cow
Economic strategies in dairy farming

- Basic conditions determine the selection of a certain strategy
  - Which production factors are limiting?
  - Climate conditions
  - Grassland/arable land
  - Prices for milk and concentrate

- In organic farming the high-output strategy is limited
- Organic farming is closer to low-input strategy
Research questions

? Which strategy can be identified under the most successful farms from bookkeeping data?
  ➢ Cluster analysis

? How do those strategies perform under volatile market conditions?
  ➢ Analysis of the time period 2005-2010
Methodology

- Clusteranalysis (Ward-approach)
  - Groups with similar units
  - Variables:
    - Costs for concentrate per cow
    - Share of grassland
    - Depreciation per livestock unit
    - Costs for hired work per hectare UAA

- Time series analysis
  - Mean comparison from 2005 - 2010
Data

- Voluntarily bookkeeping farms (about 2200 farms)
  - Organic
  - Specialized dairy farms
  - Data from 2005-2010
  - Farm income per family labour more than the average

=> 70 farms
Results from cluster analysis

Structural data

- **Cluster "intensive"** (n=14):
  - UAA = 34.3 ha
  - Milk yield per farm = 6743 t

- **Cluster "extensive"** (n=8):
  - UAA = 32.2 ha
  - Milk yield per farm = 4709 t

Source: Own illustration

UAA = Utilized agricultural area
Results from cluster analysis
Selected inputs

- Cluster "intensive" (n=14): 27.3
- Cluster "extensive" (n=8): 17.7

Source: Own illustration

- Concentrate feed (dag per kg milk)
- Depreciation (1,000 €)
Results from cluster analysis

Income data

Cluster "intensive" (n=14) vs. Cluster "extensive" (n=8)

Source: Own illustration
Results for time series analysis
Indicies for total farm input and output (2005=100)

Source: Own illustration
Results for time series analysis
Indicies for farm income and public funds (2005=100)

Source: Own illustration
Results for time series analysis
Indicies for UAA and dairx cows (2005=100)

Source: Own illustration
UAA = Utilized agricultural area
Conclusions and discussion

- Both strategies are applied under the „best“ farms (number is limited)
- Increasing milk yield is not the only successful strategy
- Strategy selection depends on basic conditions (location, politics,…)
  and strength of the farm and farmer
- Strategies are influenced differently from price fluctuations
- Intensive production needs better risk management
- Both strategies are successful options for farmers in the future
Thank you for your attention!!

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<table>
<thead>
<tr>
<th>Daten</th>
<th>Cluster 1 (n=22)</th>
<th>Cluster 2 (n=21)</th>
<th>Cluster &quot;intensive&quot; (n=14)</th>
<th>Cluster &quot;extensiv&quot; (n=8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anzahl Betriebe</td>
<td>22</td>
<td>21</td>
<td>14</td>
<td>8</td>
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<tr>
<td>Milk yield per farm (t)</td>
<td>136</td>
<td>223</td>
<td>159</td>
<td>119</td>
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<tr>
<td>UAA (ha)</td>
<td>36.4</td>
<td>44.5</td>
<td>34.3</td>
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<tr>
<td>Mittelwert von gveproha</td>
<td>116</td>
<td>134</td>
<td>120</td>
<td>133</td>
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<td>Mittelwert von kfkuh</td>
<td>354</td>
<td>552</td>
<td>667</td>
<td>299</td>
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<tr>
<td>Farm income</td>
<td>54,670</td>
<td>75,297</td>
<td>65,760</td>
<td>60,287</td>
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<tr>
<td>Mittelwert von ek_if_nak2</td>
<td>31,196</td>
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<tr>
<td>Mittelwert von milprokuh</td>
<td>5,750</td>
<td>6,255</td>
<td>6,743</td>
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<tr>
<td>Mittelwert von tmgve</td>
<td>95.8</td>
<td>89.0</td>
<td>69.7</td>
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<tr>
<td>Mittelwert von öpulant</td>
<td>46.0%</td>
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<td>39.6%</td>
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<td>Mittelwert von almant</td>
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<td>7.5%</td>
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<td>6.9%</td>
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<tr>
<td>Mittelwert von foermil</td>
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<td>208</td>
<td>302</td>
<td>320</td>
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<tr>
<td>Concentrate feed (dag per kg milk)</td>
<td>16.2</td>
<td>23.5</td>
<td>27.3</td>
<td>17.7</td>
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<tr>
<td>Total farm input (€)</td>
<td>89,082</td>
<td>94,975</td>
<td>98,992</td>
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<td>Total farm output (€)</td>
<td>143,752</td>
<td>170,272</td>
<td>164,752</td>
<td>109,317</td>
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<td>Depreciation (1.000 €)</td>
<td>25.1</td>
<td>23.9</td>
<td>27.7</td>
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<td>Standardabweichung (Grundgesamtheit) von ek_if_nak2</td>
<td>10,869</td>
<td>12,708</td>
<td>17,520</td>
<td>10,980</td>
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<td>Mittelwert von opul</td>
<td>13,498</td>
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<td>Mittelwert von nak</td>
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