Effects of structural change and international trade on profitability of apple production in Europe and South Africa

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Outline

Overview of apple production in Germany, Italy and South Africa

• Production
• Farm size structure
• Markets and trade flows

Farm level analysis

• Typical farms
• Production costs
• Profitability

Conclusions
Data sources

1. National statistics and agricultural censuses
   - Germany: Federal Statistical Office (www.destatis.de)
     - yearly production surveys
   - Italy: Italian Institute for Statistics, Istat (www.istat.it)
     - production statistics
     - agricultural censuses in 2000, 2010
   - South Africa: Hortgro Services (www.hortgro.co.za)
     - Hortgro Deciduous Fruit statistics

2. International trade statistics: UN Comtrade
# Apples in Germany, Italy and South Africa

<table>
<thead>
<tr>
<th></th>
<th>Germany</th>
<th>Italy</th>
<th>South Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share of world apple production (%)</td>
<td>1.2</td>
<td>3.2</td>
<td>1.1</td>
</tr>
<tr>
<td>Apple’s share of fruit tree acreage (%)</td>
<td>90</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>Apple consumption (kg / capita / year)</td>
<td>20</td>
<td>17.5</td>
<td>7.4</td>
</tr>
<tr>
<td>Trend in consumption</td>
<td>falling</td>
<td>rising</td>
<td>rising</td>
</tr>
<tr>
<td>National self-sufficiency of apple demand (%)</td>
<td>67</td>
<td>189</td>
<td>202</td>
</tr>
</tbody>
</table>
Apple acreage and production in DE, IT, ZA, 2002 - 2012

Source: FAOstat, 2013
Farm structures in Germany, 2012

Average farm size increased from 3.8 ha in 2002 to 5.2 ha in 2012

Farm structures in Italy, 2010

Average farm size increased from 0.5 ha in 2000 to 1.1 ha in 2012.

Source: Istat, 2013
Apple production in South Africa, 2012

Major region: Western Cape

- 472 farms with apple production
- 46 ha average farm size
- 1,280 trees per ha average planting density (Italy and Germany > 2,000 trees)
- 33% of acreage with trees older than 25 years (7% in Germany)
- 100% increase of minimum wage from 2012 to 2014

Source: Hortgro, 2014
Germany: Imports by country, total exports (1000 t)

Imports decline since 2005

Italy – most important supplier

Southern Hemisphere imports decreasing

New Zealand – most important Southern supplier

Source: UNComtrade, 2013
Italy: exports by country, total imports (1000 t)

Exports increased since 2008

Germany – most important buyer

Consistent exports to Spain and Russia

Other countries: changing export volumes

Quelle: UNComtrade, 2013
South Africa: exports by country (1000 t)

Export volumes varying, but increased since 2010

UK and Malaysia—most important buyer

Middle East countries—increasing exports

African countries—increasing importance (Benin, Ghana, Kenya, Ivory Coast)

Source: UNComtrade, 2013
Farm level analysis of costs and profits

- Statistics: good for overall sector description
- Competitiveness of the sector depends on viability of production on farm
- But: there is no „average farm“

→ Typical farm approach

- Specific for production regions and farm types (sizes)
- Generalization for group of similar farms but no individual case studies
- Analysis of cost structure, revenues, production system characteristics
Own data collection: typical farm approach

A typical apple farm

- is a virtual model based of existing farms in a specific region,
- represents a major share of apple output in that specific region,
- runs the regionally prevailing production system for apples
- reflects the prevailing combination of apple varieties, orchard composition, land and capital resources, type of labour organisation in specific region, and
- provides a full set of economic and physical data.
- is based on statistics, expert knowledge of farm advisors and farmers
- is validated in group discussions with farmers and advisors
### Overview of typical farms in Germany, Italy, South Africa

<table>
<thead>
<tr>
<th>Region</th>
<th>Typical farm</th>
<th>ha</th>
<th>average yield 2011, t/ha</th>
<th>3 top varieties</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Germany</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower Elbe</td>
<td>DE_21_AL</td>
<td>21</td>
<td>31</td>
<td>Elstar, Jonagold, Braeburn</td>
</tr>
<tr>
<td>Lower Elbe</td>
<td>DE_41_AL</td>
<td>41</td>
<td>32</td>
<td>Elstar, Jonagold, Braeburn</td>
</tr>
<tr>
<td>Lake Constance</td>
<td>DE_15_B</td>
<td>15</td>
<td>46</td>
<td>Jonagold, Elstar, Gala</td>
</tr>
<tr>
<td><strong>Italy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emilia-Romagna</td>
<td>IT_5_ER</td>
<td>5</td>
<td>49</td>
<td>Fuji, Pink Lady, Modi, Gala,</td>
</tr>
<tr>
<td>Trentino</td>
<td>IT_2.5_T</td>
<td>2.5</td>
<td>60</td>
<td>Red/Golden Delicious, Gala, Renetta</td>
</tr>
<tr>
<td><strong>South Africa</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EGVV</td>
<td>ZA_80_EGVV</td>
<td>80</td>
<td>53</td>
<td>Golden Delicious, Granny Smith, Gala</td>
</tr>
<tr>
<td>Ceres</td>
<td>ZA_120_C</td>
<td>120</td>
<td>54</td>
<td>Red &amp; Golden Delicious, Pink Lady</td>
</tr>
</tbody>
</table>
Costs and revenues per ha 2010-2012, typical farms

Source: *agri benchmark* Horticulture, 2013
Costs and revenues per ton, 2010-2012

Revenue per ton:
- Price effect

Cost change:
- Yield effect

General cost level

Source: agri benchmark Horticulture, 2013

EUR/t

DE_21_AL DE_15_B DE_41_AL IT_5_ER IT_2,5_T ZA_80_EGVV ZA_120_C
Operating Costs, 2012 (EUR/ha)

- Family labour important in Europe, particularly small farms
- Economies of scale for labour (management)
- Economies of scale for machinery
- Low labour cost is major advantage for South Africa but will increase significantly in the next years

Source: agri benchmark Horticulture, 2013
Conclusions

- Italy and Germany compete on German markets
- Differences in farm structures: Italy < Germany <<< South Africa
- Structural change towards larger farms in all countries
- Germany: advantage of efficient mechanization
- Italy: advantage of availability of family labour, high yields
- South Africa: advantage of low labour costs until 2012, high yields
- Differences in cost level, but similar levels of profits
- Labour costs as driving factor of structural change
- Farm level analysis contributes to explaining competitiveness
- *agri benchmark* Horticulture Network will grow – more countries, more years
Thanks for your attention
for further information, please contact:

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www.agribenchmark.org

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