Organic Horticulture World-wide

Helga Willer
Research Institute of Organic Agriculture FiBL, Switzerland

Presentation at: 28th International Horticultural Congress,
Symposium Organic Horticulture: Productivity and Sustainability
August 22-27, 2010, Lisbon
Contents of this presentation

- About the data collection on organic agriculture world-wide of the Research Institute of Organic Agriculture FiBL and the International Federation of Organic Agriculture Movements IFOAM;
- Key results of the most recent survey on organic agriculture world-wide;
- The organic market;
- Horticultural crops:
  - General
  - Vegetables
  - Fruits
  - Olives, Grapes, Coffee, Cocoa
- Conclusion
Global survey on organic agriculture

- Annual FiBL/IFOAM survey on organic agriculture world-wide: production data as well as market and trade data
- Data and information provided by 180 country experts (representatives from NGOs, certification bodies, governments) or bodies like Eurostat and IAMB)
- Data from 154 countries
- Since 2004: Land use and crop data

Source: FiBL and IFOAM Survey 2010
The global organic survey 2010 as well as the production of the yearbook, *The World of Organic Agriculture*, is carried out by FiBL and IFOAM with the support of:

- International Trade Centre, Geneva
- Swiss State Secretariat of Economic Affairs SECO, Bern
  - Database
  - Expansion of data collection to new variables (market and trade data)
  - Classification for crops and manufactured products
  - Website
  - Overview of data collection systems

- Nürnberg Messe, the organizers of the BioFach Organic Trade Fair
Organic data collection systems world-wide 2008 for production data (total 154 countries)

- Government collection systems (65 countries)
  - Data from the certifiers
  - Census/farm structure survey
  - Direct payments
- Private collection systems (37 countries)
  - Data from the certifiers
  - Company data
- No collection system (52 countries)
  - IFOAM and FiBL collect the data from the international certifiers

Source: FiBL and IFOAM Survey 2010:
Problems related to data / data collection

- Countries with no data collection: Not all certifiers may share their data, sometimes problems of continuity of data supply, therefore comparability over the years for these countries difficult;
- Data availability is generally improving every year, again, this can make a direct year-to-year comparison difficult;
- From major organic producer countries data on land use / crops grown are missing, even though overall data on organic agriculture are available (Australia, Brazil, China, India);
- No harmonized classification system for crops/products.
Organic agricultural land and other certified areas 2008
(total: 35.2 million hectares agricultural land; including
in-conversion areas)

Source: FiBL and IFOAM Survey 2010
World: The ten countries with the most organic agricultural land 2008

<table>
<thead>
<tr>
<th>Country</th>
<th>Million Hectares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia (2007)</td>
<td>12.02</td>
</tr>
<tr>
<td>Argentina</td>
<td>4.01</td>
</tr>
<tr>
<td>United States of America</td>
<td>1.95</td>
</tr>
<tr>
<td>China</td>
<td>1.85</td>
</tr>
<tr>
<td>Brazil (2007)</td>
<td>1.77</td>
</tr>
<tr>
<td>Spain</td>
<td>1.13</td>
</tr>
<tr>
<td>India</td>
<td>1.02</td>
</tr>
<tr>
<td>Italy</td>
<td>1.00</td>
</tr>
<tr>
<td>Uruguay (2006)</td>
<td>0.93</td>
</tr>
<tr>
<td>Germany</td>
<td>0.91</td>
</tr>
</tbody>
</table>

Argentina, US and Uruguay: Only fully converted areas

Source: FiBL and IFOAM Survey 2010
The ten countries/areas with the highest shares of organic agricultural land 2008

- Falkland Islands: 36.9%
- Liechtenstein: 29.8%
- Austria: 15.9%
- Switzerland: 11.1%
- Sweden: 10.8%
- French Guiana: 10.5%
- Estonia: 9.6%
- Latvia: 9.1%
- Czech Republic: 8.0%
- Italy: 7.9%

Source: FiBL and IFOAM Survey 2010, shares calculated with FAOSTAT data
World: Development of organic agricultural land 1999-2008

Source: FiBL, SOEL and IFOAM 2000-2010
World: Development of organic agricultural land 2004-2008

Source: FiBL, SOEL, IFOAM & SOEL 2006-2010
Global revenues by region 2008
Global market growth 1999-2008

Source: Organic Monitor 2010
Global organic market: The ten countries with the largest markets for organic food 2008

<table>
<thead>
<tr>
<th>Country</th>
<th>Turnover in million Euros 2009</th>
<th>Turnover in million Euros 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States of America</td>
<td>16'812</td>
<td>16'000</td>
</tr>
<tr>
<td>Germany</td>
<td>5'800</td>
<td>3'100</td>
</tr>
<tr>
<td>France</td>
<td>3'041</td>
<td>2'100</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>2'065</td>
<td>1'000</td>
</tr>
<tr>
<td>Italy</td>
<td>2'106</td>
<td>1'023</td>
</tr>
<tr>
<td>Canada</td>
<td>1'023</td>
<td>765</td>
</tr>
<tr>
<td>Switzerland</td>
<td>867</td>
<td>735</td>
</tr>
<tr>
<td>Austria</td>
<td>867</td>
<td>765</td>
</tr>
<tr>
<td>Denmark</td>
<td>765</td>
<td>735</td>
</tr>
<tr>
<td>Sweden</td>
<td>735</td>
<td>735</td>
</tr>
</tbody>
</table>

Source: FiBL 2010
What are horticultural crops?

Horticulture, according to many definitions = “The science and art of growing

- fruits,
- vegetables,
- flowers, or ornamental plants” (Merriam-Webster on-line dictionary).

The International Society of Horticultural Sciences ISHS takes a broader view, and includes crops such as:

- nuts,
- olives (technically a fruit, but classified separately),
- medicinal and aromatic plants,
- root crops such as potato and cassava, and
- beverage crops such as coffee, tea, and cocoa.

Source: Granatstein et al. 2010
Organic horticultural crops 2008

- At least 2.16 million hectares of organic horticultural crops are grown.
- This constitutes one percent of the world’s horticultural cropland of 200 million hectares.
- The countries with the largest areas of organic horticultural land are Mexico, Italy, and Spain.
- For some of the countries with largest horticultural areas (China, India, Brazil) no information on the use of the organic land / crops grown is available.
- It may therefore be assumed that the organic horticultural area is higher than 2.2 million hectares.

Source: FiBL and IFOAM Survey 2010
Horticultural crops: The ten countries with the largest horticultural areas 2008

- China: 44.8 million hectares
- India: 19.0 million hectares
- Nigeria: 14.9 million hectares
- Brazil: 8.8 million hectares
- Indonesia: 6.6 million hectares
- Côte d'Ivoire: 5.6 million hectares
- Spain: 5.6 million hectares
- Russian Federation: 4.6 million hectares
- Ghana: 3.8 million hectares
- Turkey: 3.5 million hectares

Grey: No data on organic land use/crops available

Source: FAOSTAT 2007 data and FiBL and IFOAM Survey 2010
Use of organic agricultural land 2008 world-wide: Horticultural crops, further uses (total: 35.2 million hectares)

Source: FiBL and IFOAM Survey 2010
Use of organic horticultural land 2008
(Total: 2.16 million hectares)

*Others: Hops, flowers and ornamentals, medicinal and aromatic plants, some root crops, tea

Source: FiBL and IFOAM Survey 2010
Horticulture: Growth of organically managed horticultural land 2004-2008

Source: FiBL and IFOAM Survey 2010
Horticultural crops: The ten countries with the largest organic horticultural areas 2008

- **Mexico** 0.30
- **Italy** 0.26
- **Spain** 0.22
- **United States of America** 0.13
- **Tunisia** 0.12
- **Dominican Republic** 0.11
- **Peru** 0.09
- **Greece** 0.08
- **Ecuador** 0.07
- **Poland** 0.07

Source: FiBL and IFOAM 2010
Horticulture: Distribution of organic horticultural land by region 2008 (total: 2.15 million hectares)

Europe: 42%
Latin America: 31%
Africa: 15%
Asia: 6%
Northern America: 6%
Oceania: 0%

Source: FiBL and IFOAM Survey 2010
Organic vegetables

- For the development of the organic market, vegetables are a pioneer product, they are associated with health and freshness.
- In many countries, for organic vegetables the organic shares are higher than for overall organic production.
- At least 235’000 hectares of organic vegetables are grown.
- This represents of 0.4 percent of the global vegetable area of 61 million hectares.
- Of the world’s ten largest vegetable producers land use/crop, data are missing for China and India, furthermore the Russian Federation and Bangladesh.
- It may therefore be assumed that the organic vegetable area is considerably higher.

Source: FiBL and IFOAM Survey 2010
Organic vegetables: Development of the organic area 2004-2008 (excluding potatoes)

Source: FiBL and IFOAM Survey 2010
Organic vegetables: Regional distribution of the organic vegetable area 2008

Europe: 41%
Northern America: 30%
Latin America: 17%
Asia: 9%
Africa: 3%

Source: FiBL and IFOAM Survey 2010
Organic vegetables: The five countries with the largest areas and shares 2008

Organic vegetable area (ha)

<table>
<thead>
<tr>
<th>Country</th>
<th>Area (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S.</td>
<td>68'301</td>
</tr>
<tr>
<td>Mexico</td>
<td>35'550</td>
</tr>
<tr>
<td>Italy</td>
<td>29'820</td>
</tr>
<tr>
<td>Indonesia</td>
<td>18'104</td>
</tr>
<tr>
<td>UK</td>
<td>16'429</td>
</tr>
</tbody>
</table>

Share of total vegetable area (%)

<table>
<thead>
<tr>
<th>Country</th>
<th>Share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>18%</td>
</tr>
<tr>
<td>Austria</td>
<td>14%</td>
</tr>
<tr>
<td>Switzerland</td>
<td>11%</td>
</tr>
<tr>
<td>Germany</td>
<td>10%</td>
</tr>
<tr>
<td>Ireland</td>
<td>8%</td>
</tr>
</tbody>
</table>

Source: FiBL and IFOAM Survey 2010, shares calculated with FAOSTAT data
Organic temperate fruits

- The area of organic temperate fruits includes pome fruit and stone fruit.
- At least 101,000 hectares of temperate fruit are grown organically worldwide.
- This constitutes 0.9 percent of the world temperate fruit area of 34 million hectares (FAOSTAT, data 2007).
- As no crop details were available for some of the world’s leading temperate fruit producers - China, Russia, and India - it can be assumed that the world figures for areas under organic temperate fruit are higher.

Source: FiBL and IFOAM Survey 2010
Organic temperate fruit: Growth of organically managed land 2004-2008

Source: FiBL and IFOAM Survey 2010
Organic temperate fruits: Regional distribution 2008

Europe: 76%
Latin America: 9%
North America: 7%
Asia: 8%

Source: FiBL and IFOAM Survey 2010
Organic temperate fruit: The five countries with the largest areas and shares 2008

<table>
<thead>
<tr>
<th>Country</th>
<th>Organic temperate fruit area (ha)</th>
<th>Share of total temperate fruit area (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Italy</td>
<td>23'718</td>
<td>24%</td>
</tr>
<tr>
<td>Turkey</td>
<td>11'326</td>
<td>17%</td>
</tr>
<tr>
<td>France</td>
<td>9'092</td>
<td>12%</td>
</tr>
<tr>
<td>USA</td>
<td>7'133</td>
<td>12%</td>
</tr>
<tr>
<td>Poland</td>
<td>6'208</td>
<td>9%</td>
</tr>
<tr>
<td>Austria</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slovakia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: FiBL and IFOAM Survey 2010, shares calculated with FAOSTAT data
Organic citrus and tropical fruit: Highly appreciated by consumers

- Organic banana is a major organic fruit and well established in production and on the market. Citrus is well developed, too, but clearly behind bananas. For others, the market is still limited.

- The potential for market growth of organic citrus and tropical fruit is high. Exotic products grow faster in many countries than the overall organic products.

Source: Lukas Kilcher, oral communication
Organic citrus fruit

- At least 57,700 hectares of citrus fruit are grown organically worldwide.
- This constitutes 0.7 percent of the world’s citrus area of 8.3 million hectares (FAOSTAT, data 2007).
- As no crop details were available for some of the world’s leading citrus producers like China and Brazil it can be assumed that the world figures for areas under organic citrus are higher.

Source: FiBL and IFOAM Survey 2010
Organic citrus fruit: Growth of the organically managed land 2004-2008

Source: FiBL and IFOAM Survey 2010
Organic citrus fruits grown 2008 (Total: 58’000 hectares)

- **39%** Oranges
- **27%** Lemons and limes
- **22%** Grapefruit/Pomelos
- **11%** Citrus fruit, other
- **1%** Citrus fruit, no details

Source: FiBL and IFOAM Survey 2010
Organic citrus fruit: Regional distribution of organic citrus area 2008

- Europe: 56%
- Latin America: 21%
- North America: 12%
- Africa: 10%
- Others: 1%

Source: FiBL and IFOAM Survey 2010
Organic citrus fruit: The five countries with the largest areas and shares 2008

Organic citrus area (ha)

- Italy: 24'531
- Mexico: 6'024
- U.S.: 5'692
- Cuba: 4'195
- Spain: 4'170

Share of total citrus area (%)

- France: 28.9%
- Dom. Rep: 18.9%
- Italy: 14.2%
- Cuba: 8.4%
- Samoa: 5.8%

Source: FiBL and IFOAM Survey 2010, shares calculated with FAOSTAT data
Organic tropical and subtropical fruit

- At least 150’000 hectares of tropical and subtropical fruits are grown organically.
- This constitutes 0.7 percent of the world’s total area for tropical and subtropical fruits of 22.3 million hectares.
- The world’s largest overall growers are India, China, Uganda, and Brazil – unfortunately for these countries no data on organic land use are available, even though they all have large areas of organic agricultural land.
- It may therefore be assumed that the area for organic tropical and subtropical fruit is higher than 150’000 hectares.

Source: FiBL and IFOAM Survey 2010
Organic tropical and subtropical fruits: Growth of the organic land 2004-2008

Source: FiBL and IFOAM Survey 2010
Organic tropical and subtropical fruit: Crop pattern 2008 (total: 150,000 hectares)

Source: FiBL and IFOAM Survey 2010
Organic tropical and subtropical fruit: Regional distribution of organically managed area 2008

- **Latin America**: 69%
- **Africa**: 28%
- **Northern America**: 1%
- **Asia**: 2%
- **Europe**: 1%

Source: FiBL and IFOAM Survey 2010
Organic tropical and subtropical fruits: The five countries with largest areas and shares 2008

Organic (sub) tropical fruit area (ha)

- **Mexico**: 46'670 ha
- **Ecuador**: 21'708 ha
- **Dom. Rep.**: 15'871 ha
- **Rwanda**: 9'150 ha
- **Peru**: 7'504 ha

Share of total (sub)tropical fruit area (%)

- **Dom. Rep.**: 15%
- **Senegal**: 14%
- **Jordan**: 13%
- **Mexico**: 10%
- **South Africa**: 10%

Source: FiBL and IFOAM Survey 2010, shares calculated with FAOSTAT data
Organic olives

- More than 430,000 hectares of organic olives were grown in 2008.
- This is approximately 4.7 percent of the world's olive area (9.3 million hectares, FAOSTAT 2007).
- The main countries in which olives are grown are the countries of the Mediterranean, with Spain by far the largest grower; Tunisia, Italy, Greece, and Turkey also important producers.
- Although the same countries are important in organic production, the sequence is somewhat different. Tunisia has the largest area under organic olives, with Italy and Spain close behind.
- The production of olives has to some degree been subsidy driven (EU), as conversion of extensively managed olive groves is easy.

Source: FiBL and IFOAM Survey 2010, shares calculated with FAOSTAT data
Organic grapes

- Almost 150,000 hectares of organic grapes were grown in 2008.
- This is approximately 2.1 percent of the world's total harvested grape area (7.3 million hectares, FAOSTAT, data 2007).
- The main countries in which grapes are grown are the countries of the Mediterranean, with Italy being the largest grower, followed by Italy and France 2008; since 2009 Spain has the largest grape area.
- The highest percentage for organic grapes is in Greece and Italy (both 6.3 percent), followed by Austria 5.3 percent).
- More than three quarters of the organic grape area are in Europe.

Source: FiBL and IFOAM Survey 2010, shares calculated with FAOSTAT data
Organic coffee

- Organic coffee area in 2008: At least 460'000 hectares
- This constitutes 4.5 percent of the world’s harvested coffee area of 10.4 million hectares (FAOSTAT data 2007).
- The largest organic coffee areas are in Mexico, Peru, and Ethiopia.
- Data on the organic area were not available for all major coffee-producing countries (the leading producers are Brazil, Indonesia, Ivory Coast, Mexico, Colombia, and Vietnam).
- Almost three quarters of the world’s organic coffee area are in Latin America.

Source: FiBL and IFOAM Survey 2010, shares calculated with FAOSTAT data
Organic cocoa beans

- Organic cocoa area (including conversion area) in 2008: At least 165'000 hectares
- = 2 percent of the world's total cocoa area of 8.3 million hectares (FAOSTAT)
- The world's leading cocoa producers are Ivory Coast, Ghana, Nigeria, Indonesia, and Brazil, but data on the organic cocoa area were not available for all these countries.
- The countries with the largest organic cocoa bean area are the Dominican Republic, Ecuador, and Mexico.
- Ninety-percent of the world's organic cocoa bean area is in Latin America.

Source: FiBL and IFOAM Survey 2010, shares calculated with FAOSTAT data
Switzerland: Shares of the total market for selected organic product groups 2009

- Eggs: 17.00%
- Bread and other bakers' wares: 16.00%
- Vegetables: 11.00%
- Dairy products, no details: 9.00%
- Convenience food: 8.00%
- Fruit, no details: 7.00%
- Cheese: 5.00%
- Frozen food: 3.00%
- Meat and meat products, no details: 2.00%
- Beverages, no details: 2.00%

Source: Bio Suisse 2010
Switzerland and USA: Importance of selected product groups of the overall turnover with organic food 2009

**Switzerland**

- **Fruit and vegetables**: 20
- **Dairy products**: 15
- **Bread/bakery products**: 13
- **Vegetables**: 12
- **Fruit**: 8
- **Convenience food**: 8
- **Meat and meat products**: 7
- **Cheese**: 6
- **Beverages**: 5
- **Eggs**: 4
- **Frozen food**: 3

**USA**

- **Fruit and vegetables**: 38
- **Dairy products**: 15
- **Package Foods**: 14
- **Beverages**: 13
- **Breads and grains**: 11
- **Snack foods**: 4
- **Meat and fish**: 2

Source: Bio Suisse 2010 and OTA 2010
Organic Exports from Peru:
Key products 2008 (export volume), growth of exports, key destinations for export products 2008

- **Coffee**: 59%
- **Banana**: 21%
- **Cocoa**: 10%
- **Cotton**: 4%
- **Mango**: 1%
- **Others**: 5%

**Growth of Exports 2008**
- 1999: 6.1
- 2001: 9.8
- 2003: 15.2
- 2005: 21.9
- 2007: 32.2
- 2009: 44.4
- 2011: 68.9
- 2013: 100.9
- 2015: 161.3
- 2017: 194.2
- 2019: 225.0

**Key Destinations for Export Products 2008**
- **Europe**: 36%
- **Americas**: 33%
- **Asia**: 12%
- **Others**: 6%

Source: Aduanas. Elaborated by: PROMPERU
Conclusions

- Horticultural crops are among the most important products in the organic market place, particularly vegetables and fruit.
- In many countries the share of land used for horticultural products is higher than the overall organic share.
- Growth of the organic areas for horticultural crops has been higher than for the organic agricultural land since 2004, and growth is expected to continue in the future.
- For many developing countries the exports of organic horticultural crops are increasingly important.
- However, there are a number of production constraints like insect, disease, and weed control challenges, but with more research and development progress can be expected.
- It is important to improve data availability in the area of production, market and trade, so that developments can be better monitored - important for decision makers and market actors.
Acknowledgements

Acknowledgements for their support with this presentation are due to

David Granatstein of Washington State University
Elisabeth Kirby of Washington State University
Lukas Kilcher, FiBL, Frick, Switzerland
Martin Lichtenhahn, FiBL, Frick, Switzerland
Franco Weibel, FiBL, Frick, Switzerland
The World of Organic Agriculture 2010

## Key horticultural crop groups: Growth and shares

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic agricultural land</td>
<td>18 %</td>
<td>0.8 %</td>
<td>37 % Falkland Islands</td>
</tr>
<tr>
<td>Horticulture</td>
<td>120%</td>
<td>1 %</td>
<td>27.6 %: East Timor</td>
</tr>
<tr>
<td>Vegetables</td>
<td>113 %</td>
<td>0.4 %</td>
<td>18 %: Denmark</td>
</tr>
<tr>
<td>Temperate fruit</td>
<td>74 %</td>
<td>0.7 %</td>
<td>24 % Austria</td>
</tr>
<tr>
<td>Tropical fruit</td>
<td>300 %</td>
<td>0.7%</td>
<td>15 % Dominican Republic</td>
</tr>
<tr>
<td>Citrus fruit</td>
<td>100 %</td>
<td>0.7 %</td>
<td>18.9 %: Dominican Republic</td>
</tr>
<tr>
<td>Grapes</td>
<td>70 %</td>
<td>2 %</td>
<td>6.3 %: Greece and Italy</td>
</tr>
<tr>
<td>Olives</td>
<td>40 %</td>
<td>4.6 %</td>
<td>16.3 % Argentina</td>
</tr>
<tr>
<td>Coffee</td>
<td>140 %</td>
<td>4.5 %</td>
<td>40.2 % Timor Leste</td>
</tr>
<tr>
<td>Cocoa beans</td>
<td>220%</td>
<td>2 %</td>
<td></td>
</tr>
</tbody>
</table>

Source: FiBL and IFOAM Survey 2010
General notes on the data

- Term organic: Fully converted and in-conversion areas.
- Share of total agricultural land: based on FAOSTAT data.
- Countries: For countries and areas, FiBL and IFOAM used the Standard Country and Area Codes Classifications as defined by the United Nations Statistics division.
Contact

Helga Willer
Research Institute of Organic Agriculture FiBL
Ackerstrasse
5070 Frick
Switzerland
Tel. +41 62 865 72 07
Fax +41 672 865 7273
E-mail helga.willer@fibl.org
Sources

Sources for country data mentioned in this presentation

- Australia: AQIS
- Argentina: SENASA
- Brazil: Organics Brazil
- China: CNCA
- Ecuador: GTZ
- Ethiopia: Data from certifiers
- European Union: Eurostat
- Falkland Islands: Ministry of Agriculture, Falkland Island
- French Guiana: Agence Bio
- India: APEDA
- Indonesia: Indonesia Organic Alliance
- Mexico: University of Chapingo
- Peru: SENASA Peru
- Ruanda: RHODA/UNCTAD
- Switzerland: FiBL
- Tunisia: Ministry of Agriculture
- Uruguay: DGSA/INIA
- U.S.: USDA