Global Overview of the Spread of Conservation Agriculture*

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Outline

- Introduction
- CA definition
- CA adoption global
- CA adoption by regions
- Conclusions
Conservation Agriculture is spreading:

- Spread of CA is mainly a farmer led process.
- It represents a major shift in production paradigm.
- It is increasingly catching the attention of donors, governments, NGOs and development organizations.
- The sources of data vary from official statistics from Governments and No-Till Associations to individuals in local research and development organizations.
- The data collected in this recent review try to reflect “good quality CA” as much as possible.
FAO Definition: [www.fao.org/ag/ca](http://www.fao.org/ag/ca)

*Conservation Agriculture (CA)*

is an approach to managing agro-ecosystems for improved and sustained productivity, increased profits and food security while preserving and enhancing the resource base and the environment. CA is characterized by three linked principles, namely:

1. Continuous minimum mechanical soil disturbance.
2. Permanent organic soil cover.
3. Diversification of crop species grown in rotations, sequences or associations.
This definition translates into following practices:

- Continuous no-till (<15 cm/25%)
- Residue mulch or crop cover (>100, min. 30%)
- Crop rotations/associations (>3 diverse species)
Global CA Area in Mill. ha

Year

Mill. ha


155 mill. ha
Worldwide adoption of Conservation Agriculture

**History and Adoption of CA**

1930: Dustbowl

1950: US Soil Conservation Service conservation tillage

1960: First no-till in the US

1970: Faulkner (US) – Fukuoka (Japan)

1975: dustbowl Siberia/USSR

1980: first no-till farmers in USA

1985: first no-till demonstration in Brazil

1990: Oldrieve/Zimbabwe

1995: ITA no-till research

2000: adoption Brazil plantio direto na palha

2005: experiments in China, Indogangetic Plains

2010: New boost: Canada, Australia, Kazakhstan, Russia, China, Finland, Africa

155 million ha

First WCCA in Madrid
## Area of arable cropland under CA by continent

(source: Kassam et al., 2014; FAO AquaStat: [www.fao/ag/ca/6c.html](http://www.fao/ag/ca/6c.html))

<table>
<thead>
<tr>
<th>Continent</th>
<th>Area (Mill. ha)</th>
<th>Per cent of global total</th>
<th>Per cent of arable land of reporting countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>South America</td>
<td>64.0 (55.5)</td>
<td>41.3</td>
<td>60.0</td>
</tr>
<tr>
<td>North America</td>
<td>54.0 (40.0)</td>
<td>34.8</td>
<td>24.0</td>
</tr>
<tr>
<td>Australia &amp; NZ</td>
<td>17.9 (17.2)</td>
<td>11.5</td>
<td>35.9*</td>
</tr>
<tr>
<td>Asia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Russia &amp; Ukraine</td>
<td>10.3 (4.7)</td>
<td>6.6</td>
<td>3.0</td>
</tr>
<tr>
<td>Europe</td>
<td>5.2 (5.1)</td>
<td>3.4</td>
<td>3.3</td>
</tr>
<tr>
<td>Africa</td>
<td>2.1 (1.4)</td>
<td>1.4</td>
<td>2.8</td>
</tr>
<tr>
<td>1.2 (1.0)</td>
<td>0.8</td>
<td></td>
<td>0.9</td>
</tr>
<tr>
<td>Global total</td>
<td>155 (125)</td>
<td>100</td>
<td>10.9 (8.8) % global arable</td>
</tr>
</tbody>
</table>
CA-Adoption by World Region [mill. ha and %*]

North America 54 (24%)
South America 64 (60%)
Asia 10.3 (3 %)
Ukraine/Russia 5.2 (3.3 %)
Africa 1.2 (0.9 %)
Europe 2.1 (2.8 %)
Australia/New Zealand 17.9 (35.9%)

Total CA: 155 Mill. ha, about 11% of global arable cropland

*Average adoption level in each region based on arable land area of reporting countries
Conservation Agriculture globally 155 Million ha (~11% of arable cropland)
CA adoption in South America [64 Mill. ha & 60% of cropland]

- **Argentina**: 27 (80%)
- **Uruguay**: 1.1 (83%)
- **Bolivia**: 0.7 (23.8%)
- **Venezuela**: 0.3 (12%)
- **Paraguay**: 3 (99%)
- **Colombia**: 0.1 (6%)
- **Chile**: 0.2 (9%)
- **Brasil**: 32 (54%)
CA adoption in North America and Mexico [54 Mill. ha & 24% of cropland]

Mexico
0.04 (0.2%)

USA
36 (20%)

Canada
18 (40%)
CA adoption in Europe incl. Ukraine and Russia [7.3 Mill. ha & 6.1% of cropland]
CA adoption in Africa [1.2 Mill. ha & 0.9% of cropland]

- Morocco: 0.004 (0.05%)
- Tunisia: 0.008 (0.28%)
- Ghana: 0.03 (0.7%)
- Kenya: 0.03 (0.7%)
- Lesotho: 0.002 (0.6%)
- Malawi: 0.07 (2.8%)
- Madagascar: 0.006 (0.2%)
- Namibia: 0.0003 (0.04%)
- Sudan: 0.01 (0.06%)
- Tanzania: 0.03 (0.6%)
- South Africa: 0.4 (2.5%)
- Mozambique: 0.2 (3.6%)
- Zimbabwe: 0.3 (10%)
- Zambia: 0.2 (3.8%)
CA adoption in Asia [10.3 Mill. ha & 3.0% of cropland]

- **China**: 6.7 (4.7%)
- **India**: 1.5 (0.9%)
- **Kazakhstan**: 2 (9.3%)
- **Iraq**: 0.02 (0.3%)
- **Korea, DPR**: 0.02 (0.9%)
- **Lebanon**: 0.001 (0.7%)
- **Syria**: 0.03 (0.7%)
- **Turkey**: 0.05 (0.2%)
- **Azerbaijan**: 0.001 (0.07%)
- **Kyrgyzstan**: 0.001 (0.05%)
- **Uzbekistan**: 0.003 (0.05%)
CA adoption in Australia and New Zealand [17.9 Mill. ha & 35.9% of cropland]

- Australia: 17.7 (36.7%)
- New Zealand: 0.2 (10.8%)

Close to 100% adoption in Western Australia
Conclusions

- CA is spread over 155 M ha across all continents (11% of global cropland), an increase of 24% since 2010, & continues to spread at an annual rate of 10 M ha.
- Originally a farmer’s driven process, but attention increasingly paid by donors, national and international development organizations, and increasingly by governments – becoming a structural response.
- CA is getting recognized more widely as an approach for sustainable production intensification that offers enhancement of productivity with ecosystem services and improved resilience, and climate change adaptability and mitigation.
- The spread of CA is equally divided between developed regions and developing regions; major share is located in the Americas and Australia.
- CA is now increasing in Europe, Asia & Africa as relatively more attention is directed to it by development stakeholders and governments.
- Other regions struggle with keeping good quality CA (Latin America with Soya)
- Further policy and institutional support is needed for faster adoption AND for safeguarding quality of CA to ensure environmental services.
CA, the Agriculture of the Future – the Future of Agriculture

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Join the CA-CoP!