Productivity in agriculture of Ukraine and other CIS

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Productivity in agriculture of Ukraine and other CIS

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Productivity and Efficiency and their measurement

• Productivity is a major concept in economics, but there is no unique approach

• Productivity as ratio of output (produced) over the resources used (input) in the production process
  – partial productivity
    • Land
    • Labor
  – total factor productivity
    • Farm efficiency
Global Agricultural Productivity

Global TFP growth in agriculture,
decade average annual growth

% annually

As result of
Efficiency increase & Technological progress

Source: OECD-FAO Agricultural Outlook 2012-21
Global Agricultural Productivity by Regions

TFP growth in agriculture by countries, decade average annual growth

% annually

Growth leaders

Source: OECD-FAO Agricultural Outlook 2012-21
Land productivity: Yields
Yield dynamics of major crops in major exporting countries

Let’s look in more detail!

Source: USDA.
Yield dynamics

Maize

Source: USDA.
Yield trends

Source: USDA.
Yield growth

Maize

+230 kg/ha annually

Source: USDA.
Yield growth

Source: USDA.

Wheat

+68 kg/ha annually

Argentina
Canada
Ukraine
Russia
USA
Kazakhstan
Australia
France
Yield growth

Sunflower

Source: USDA.
Yield growth

Soybean

+68 kg/ha annually

Source: USDA.
Yields in Ukraine:
agriholdings vs. medium-size agricultural enterprises

Source: Largest holdings in crop production of Ukraine – 2012 (AgriSurvey)
Labor productivity
Labor productivity

Agricultural Gross Production Value per 1 agricultural worker, (constant 2004-2006)

Source: FAO.
Labor productivity

Arable land per 1 agricultural worker, ha

Source: FAO.
Labor productivity

Arable land per 1 agricultural worker (2009), ha

Source: FAO.
Labor productivity

Arable land per 1 agricultural worker (2009), ha

Labor productivity

Agricultural Gross Production Value per 1 agricultural worker, (constant 2004-2006)

Source: FAO.
Agricultural Gross Production Value per 1 agricultural worker, (constant 2004-2006)

Farm Efficiency
Maize prices and production costs in 2011

USD/t

Costs per ton
Price per ton

Source: agri benchmark.
Cost efficiency

Wheat prices and production costs in 2011

USD/t

Source: agri benchmark.
Inputs price advantage

**Fertilizers & Diesel prices in Ukraine and Russia in January 2012**

- **USD/t**
- **Ukraine**
- **Russia**

<table>
<thead>
<tr>
<th>Fertilizer</th>
<th>Ukraine</th>
<th>Russia</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium nitrate</td>
<td>-21%</td>
<td>-17%</td>
<td>-4%</td>
</tr>
<tr>
<td>Ammonium phosphate</td>
<td>-17%</td>
<td>-21%</td>
<td>-4%</td>
</tr>
<tr>
<td>Potassium chloride</td>
<td>-53%</td>
<td>-50%</td>
<td>-3%</td>
</tr>
<tr>
<td>NPK16:16:16</td>
<td>-4%</td>
<td>-4%</td>
<td>0%</td>
</tr>
<tr>
<td>Diesel fuel</td>
<td>-50%</td>
<td>-50%</td>
<td>0%</td>
</tr>
</tbody>
</table>

- **-$60/ha**
- or 10% of total costs per ha

Source: inputs suppliers.
Determinants of agricultural productivity

Ag. technology, product and factor price determine output and input and, thus, productivity

- Technology Improvement in agriculture
- Global public spending for agricultural research and development
- Worldwide output price development
- Input Price development
Options for productivity increases

Human Capital Management
New technologies
Precision farming
GM seed
Better ag. machinery
Policy implications and options

- Bioenergy - Yes or Not
- ‘Intensification vs. land expansion’ in agriculture
- Agribusiness or “traditional farming”
- Agricultural research and education
- Global trade and national food security
- Rural area transformation
Thank you for your attention!