ABSTRACT: 477

SUSTAINABLE AGRICULTURAL SYSTEMS IN ARGENTINA

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Humankind is facing a difficult situation –the urgent need to increase food production both in quantity and quality, and to do it without destroying the environment. Consequently, it is essential to design and develop agricultural models aiming to solve both issues simultaneously. In this regard, in Argentina (South America) there are some true experiences, such as Grupo Romagnoli, that are permanently trying to achieve this goal of economic, ecological and social sustainability.

Grupo Romagnoli directly manages about 15,000 hectares (mixed production system) under 40 years of No Till system –absence of tillage and the presence of a permanent soil cover. The holistic conception of a production system under No Till implies the adoption of a set of Good Agricultural Practices (GAP) for the system to be sustainable.

Among the GAPs implemented together with NT by Grupo Romagnoli we can mention crop rotation (adjusted to crop diversity and intensity based on the environment), crop nutrition and fertilization; cover crops, integrated pest management, and efficient and responsible use of pesticides.

Moreover, choosing the right genetics turns to be a key factor to achieve the maximum sustainable productivity. Within this context, biotechnology is a vital tool –and the most promising one- to boost productivity in every environment.

Finally, both the production system as a whole and the agronomic management at Grupo Romagnoli are set within a framework of environmental quality management called Certified Agriculture (AC, as per the Spanish acronym). Certified Agriculture system, created and promoted by Aapresid (Argentine No Till Farmers Association) consists in implementing a GAP protocol as well as using, measuring, and registering environmental management indicators. AC implementation allows to gain access to better tools for a professional agronomic management, increasing productive systems efficiency, enabling continuous improvement processes while reducing costs and increasing profits. Also, by having a described, monitored and certified process farmers can show the rest of the society how food production processes work and their impact on the environment which allows to capture the value of the positive externality Agriculture Certification exerts on environment.
Sustainable agriculture in Argentine with no-till systems and Certified Agriculture

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General Manager of Romagnoli Group
Former-Adjunct Director of Certified Agriculture, Aapresid.
Director of OKANDU
Global Context: The role of agriculture

- **Increasing demand** in quantity and quality for **food and energy**.

- **4E Paradigm**: Economy, Ecology, Ethics, Energy
  - Environmental sustainability of agricultural sector.

- **Strategy**: **Higher productivity, sustainable**

- **Tools**:
  - **Intensification** on land used under production with GAPs.
  - **New areas under production** (Land Use Planning).
TRADITIONAL AGRICULTURE

Modification of the environment (soil)

Plant

Yield potential


SUSTAINABLE AGRICULTURE

Adaptation of the plant and the technology

Environment

Sustainable production potential

Source: Gil (2005)
Productive system based on the absence of tillage, and the presence of permanent soil cover with crops and residues.
No-Tillage

Crop Rotation: Diversity and Intensity

Balanced crop nutrition

Integrated Pest Management

Responsible and efficient management of agro-chemicals

Cattle information management
Agriculture in Romagnoli Group

- The same practices used to maximize agricultural production are those that protect the environment.

- Food should not be produced at expense of the environment, nor the conservation of the environment at expense of food production.

- In Romagnoli Group, we implement Good Agricultural Practices, monitor its impact on the environment, and finally we audit and certify the production process. This is the Certified Agriculture system.
Good Agricultural Practices in action

Water Use Efficiency (grain production/annual precipitation)

<table>
<thead>
<tr>
<th></th>
<th>Low intensity rotation</th>
<th>High intensity rotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check</td>
<td>5.78</td>
<td>5.90</td>
</tr>
<tr>
<td>Fertilized (NPS)</td>
<td>9</td>
<td>10</td>
</tr>
</tbody>
</table>

Grain production / annual precipitation (Kg/mm)
Final comments ...

Thank you!

www.gruporomagnoli.com.ar
www.ac.org.ar/english
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