AGRICULTURE PROJECT OPPORTUNITY
Rafaela Experimental Field
Santa Fe Province, Argentina
Institute National Technology Agricultural (INTA)

OVERVIEW OF AGRICULTURE PROJECT OPPORTUNITY:
The Rafaela dairy operation in the Santa Fe province of Argentina is a freestall and pasture dairy farm with a livestock population of approximately 250 dairy cows. The current manure management method involves using a hose and water and the existing waste management system includes solids separation with a settling basin, an anaerobic lagoon, an aerobic lagoon, and solid waste storage in a stack or pile. Waste is discharged to surface waters.

The proposed methane recovery system is a plug flow digester and the resulting biogas will be utilized for heating.

The estimated emissions reductions = 42 metric tons CO₂ Equivalent/year

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ESTIMATED METHANE EMISSIONS

<table>
<thead>
<tr>
<th>Animal Type</th>
<th>Standing Animal Population (head)</th>
<th>Volatile Solids (kg/head/day)</th>
<th>Total Volatile Solids (kg/day)</th>
<th>B₀ Factor (Ultimate Methane Yield) (m³/kg)</th>
<th>Ultimate Methane Yield (m³/day)</th>
<th>Methane Conversion Factor (MCF)</th>
<th>Estimated Emissions (kg CH₄/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cows – lactating</td>
<td>250</td>
<td>2.9</td>
<td>725</td>
<td>0.13</td>
<td>94.25</td>
<td>0.74</td>
<td>1,706</td>
</tr>
<tr>
<td>TOTALS</td>
<td>250</td>
<td></td>
<td>725</td>
<td></td>
<td>94.25</td>
<td>0.74</td>
<td>1,706</td>
</tr>
</tbody>
</table>

*assumes that only 10% of the manure is collected
COST & REVENUE INFORMATION

Estimated Cost: US$ 36,000  
Operation & Maintenance (per year): US$ 4,000  
Estimated electricity offsets: none  
Estimated heating/other benefits (per year): US$ 2,000  
Other revenue streams: none  
Estimated payback period: 20 years

OTHER ENVIRONMENTAL AND HUMAN HEALTH BENEFITS

- Prevents/reduces water pollution by treating manure before land application.
- Improves air quality by reducing odors and emissions of volatile organic compounds.
- Improves rural sanitation and human health by reducing breeding sites for flies and other disease vectors and also reduces sub surface water pollution.

FOR MORE INFORMATION

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DISCLAIMER: The information and predictions contained within this flyer are based on the data provided by the site owners and operators. The Methane to Markets Partnership cannot take responsibility for the accuracy of this data.