



Innovation in the Field: Decoupling Carbon Emissions from Productivity in Brazilian Farming



Objective

Help farmers in Brazil produce more livestock and crops using optimized resources, resulting in lower greenhouse gas (GHG) emissions

Challenge

Restore degraded pasturelands and use information technology to reduce agriculture's environmental impact

Solution

Dow's weed control, seeds and crop protection technologies combined with expertise on pastureland productivity and variable rate agriculture

Brazil has stated its intention to reduce greenhouse gas emissions by 37 percent by 2025, with pastureland recovery identified as a key area of focus.

Considered the breadbasket of Brazil, Mato Grosso is home to millions of hectares of land dedicated to herding cattle and growing soybeans and corn. To ensure future farmers' success, we must help increase agricultural efficiency while reducing negative environmental impact.

To achieve this goal, Dow deploys state-of-the-art agricultural solutions from world-leading experts in sustainable agriculture.

Sustainable Livestock – Recovery of Degraded Pastureland

Dow partnered with Roncador Group – a Brazilian leader in agriculture and livestock with more than 30 years of experience – to provide expertise and technology to ranchers in the Araguaia Valley region. The project offers educational and consulting services to farms within the region, advising on the techniques and benefits of intensifying livestock production by recovering and maintaining pastureland. Roncador operates a model farm to demonstrate technologies including weed control and seed solutions that enable soil to capture more carbon while increasing productivity of livestock.

The project is also introducing farmers to carbon-tracking methodology to quantify emission reductions, with a goal to monitor more than 50,000 hectares of pastureland.

Precision Agriculture

The project introduced precision agriculture and variable rate technology to farmers in Mato Grosso while providing related expertise. This helps the farmers optimize their use of synthetic fertilizer to reduce nitrous oxide emissions.

Participating farmers have access to technologies such as satellite imagery, precision harvest and profit maps, intensive soil sampling and laboratory analysis, weather monitoring, and detailed review of cropping plans and goals with variable rate technology experts. Dow is also offering seeds and crop protection solutions to farmers to help optimize production and increase yields. Implementation started in August

2015 and spans 25,000 hectares across seven farms to cover two crop seasons – one summer crop (soy) and one winter crop (corn, cotton or sunflowers).

Delivering Tangible Results

As the Official Carbon Partner of the first Olympic Games in South America, Dow has committed to delivering third-party-verified primary climate benefits of 500,000 tons of CO₂e by 2026 to address the owned emissions of the Organizing Committee. Together, we are using the Olympic Games as an opportunity to implement energy-efficient and low-carbon technologies across major sectors of the Brazilian economy, demonstrating the power of innovation to reduce carbon emissions.

Working with NatureBank as our carbon consultant, we developed the Dow Climate Solutions Framework, quantified the emission reductions associated with our projects and demonstrated how these emission reductions are beyond business as usual. NatureBank specializes in advisory, technology and project investment services with a primary focus on carbon.

We selected Environmental Resources Management (ERM) to provide third-party validation of the Project Plans against the Dow Climate Solutions Framework and verify GHG emission reductions. In addition, ERM conducts an assessment of forecasted generation of climate benefits based on verified evidences.

Leaving a Lasting Legacy

Through a comprehensive portfolio of solutions and our deep heritage and relationships in the region, we are working with customers in food packaging, construction, agriculture and industrial processes to increase awareness and adoption of energy-efficient and low-carbon technologies. Ultimately, the portfolio is designed to impact key sectors in Brazil and Latin America and will enable industries to do more with less, switch to lower-carbon energy sources and conserve energy through efficient solutions. These projects push beyond normal operations to

achieve more innovation, overcome real or perceived barriers and catalyze long-term change in market practices.

Commitment to the Future

Dow and Rio 2016 are also collaborating to enable an additional 1.5 million tons of CO₂e in climate benefits to compensate for emissions beyond the direct control and influence of the Organizing Committee, such as those caused by travel, lodging and other activities.

To broaden awareness of climate change and related issues, we are also partnering

with Rio 2016 through the *Transforma* program to reach more than 7 million students in Brazil with science, technology, engineering and math (STEM) curricula in 2016. This program uses the Games to demonstrate the applicability and relevance of the sciences, and as an opportunity to teach sustainable practices that students can use in their everyday lives.

To Learn More

Go to dow.com/carbonmitigation to learn more about Dow's carbon mitigation program with the Rio 2016 Organizing Committee and to view its results.

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