Context

- **Tackling greenhouse gas (GHG) emissions** from food systems, especially from beef cattle production, are a global priority.
- South America produces close to a quarter of the world's beef (FAO, 2022) but productivity is still low. Improving production **significant GHG emissions reductions**, as practices can **achieve** well as positive environmental (e.g., biodiversity) and economic outcomes.
- Cattle ranch Hacienda San Jose (HSJ) in Colombia is transitioning to more sustainable livestock production systems by **enhancing beef cattle productivity** and **reducing GHG emission intensities**.

Our innovative approach

- Partnership with HSJ to plant **7,000 ha of** improved deep root tropical forages.
- The forage variety, ***Urochloa humidicola cv. Tully*/CIAT/679**, developed by the Alliance of Bioversity International and CIAT, can store large quantities of carbon in soils through its deep root system.
- **Combined with improved cattle genetics and pasture management**, HSJ cattle had lower GHG emissions intensities, 44% lower than reference cow-calf farms in the region, reducing GHG emissions by ~32,000 tCO2e/year.

Jacobo Arango, environmental biologist at CGIAR's Alliance of Bioversity-CIAT measures the root systems of the tropical forages planted in Hacienda San José's pastureland. Photo HSJ

CGIAR

INITIATIVE ON

Livestock and Climate

Harnessing genetic diversity in deep-rooted tropical forage grasses for greater livestock productivity and reduced greenhouse gas emissions

- Livestock production has the greatest potential for **mitigating greenhouse gas emissions across food systems**, which is critical to achieving net-zero emissions in food systems (Costa Jr et al., 2022).
- **Improved management of tropical forages** contribute to greater livestock productivity, thereby reducing emissions intensities.
- The deep rooting ability of perennial tropical forage grasses contribute to **improvements in soil health** and **reduced net emissions** from tropical soils through carbon sequestration.
- A major barrier to scaling improved livestock systems is the size of investments required. Many stakeholders believe **carbon markets** (voluntary or compliance), could play a key role in accelerating this transition.

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Progress/outcomes

The science-based evidence developed helped secure approximately $21M in investments to scale climate benefits in Colombia and other countries:

- HSJ acquired a **loan of $7.5M from sustainable impact investor &Green** and an additional **USD 2.5M from private sector investors** to expand its operations to 180,000 ha (an area larger than London).
- **Bezos Earth Fund granted CIAT $11M** to identify and improve the genetic diversity of tropical pastures for soil carbon capture, with field trials planned in Brazil and Kenya in 2023.
- By 2025, we expect to further scale out improved forages on more pastureland and to generate other impact investments that replicate HSJ's success through the CGIAR Research Initiative on Livestock and Climate.

A rancher herding cattle at the Hacienda San José ranch. Photo HSJ

Partners

Alliance Bioversity & CIAT · HACIENDA SAN JOSÉ · THE WORLD BANK · & · BEZOS EARTH FUND

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