Economic impact of *Canavalia brasiliensis* hay supplementation in beef cattle farming in the Colombian Caribbean

John Jairo Junca Paredes[1], José Edwin Mojica Rodríguez[2], Edwin Castro Rincón[2], Mauricio Efren Sotelo Cabrera[1] & **Stefan Burkart[1].**

[1] International Center for Tropical Agriculture, Tropical Forages Program, Colombia. [2] Colombian Corporation for Agricultural Research.

Contact: s.burkart@cgiar.org

INTRODUCTION

- The Colombian Caribbean holds about 29% of the country's cattle herd (ICA, 2024).
- Regional cattle systems have low investment in land adaptation and are based on the monoculture of *Bothriochloa pertusa* (Colosuana grass).
- These extensive practices affect productivity and quality, especially in periods of drought (Tapia-Coronado et al., 2019).
- Supplementation with the legume *Canavalia brasiliensis* has potential to address this problem (Mojica-Rodríguez, 2017).
- **Trial:** Dual-purpose system during the dry season in the municipality of San Diego, Cesar, Colombia.
- **Hypothesis:** Improvements in productivity translate into greater economic benefit.

OBJECTIVE

Economically evaluate three sustainable production alternatives with supplementation of *Canavalia brasiliensis* and pasture improvement compared to a traditional Colosuana system.

METHODOLOGY

- Agronomic, animal response, and economic data collected by AGROSAVIA.
- **Cases:** Traditional system and three scenarios with pasture improvement and supplementation with *Canavalia brasiliensis* at three inclusion levels (IL).
- Discounted cash flow from 2022 to 2029, with the estimation of probabilistic profitability indicators for each scenario: Net Present Value (NPV) and Internal Rate of Return (IRR).

RESULTS

Intensification: Animal stocking rate increases from 0.7 Tropical Livestock Units (TLU) per ha to 1 TLU/ha and milk productivity from 2.7 to 4.9–5.3 l/cow/d.

Table 1. Profitability indicators – Monte Carlo Simulation.

SCENARIOS	MEAN NPV (US$)	MEAN IRR (%)
Traditional	4,225	10.19
IL 0.5 %	23,451	16.74
IL 1.0 %	23,663	16.85
IL 1.5 %	25,115	17.39

Note: The percentages of IL correspond to dry matter of the animal liveweight gain and the discount rate is 6.9%

- All technologies are profitable (NPV>0 and IRR>6.9%).
- Scenario with 1.5% supplementation is the most profitable.

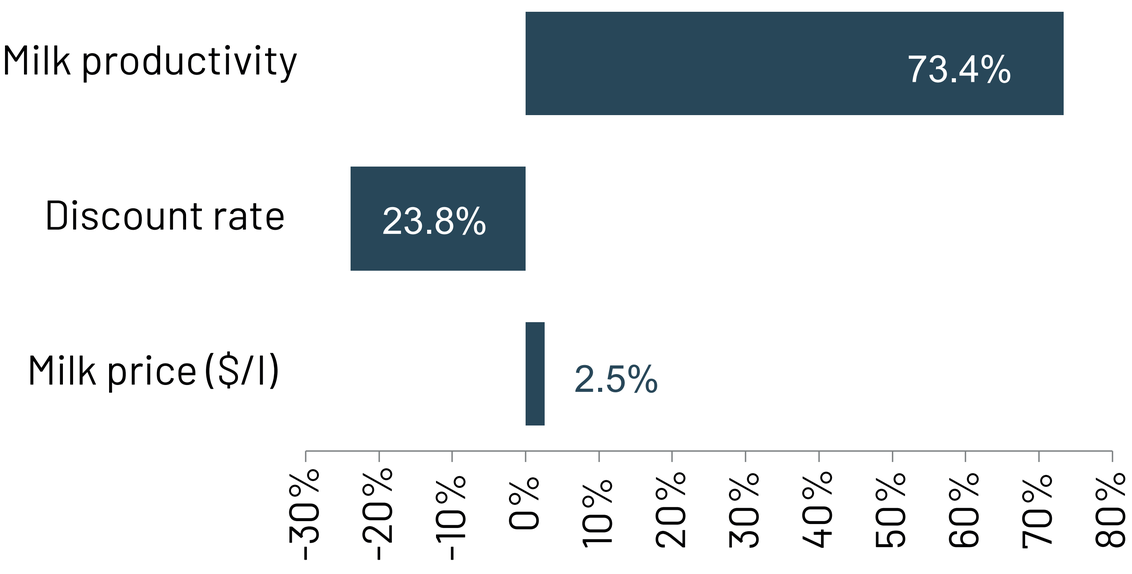
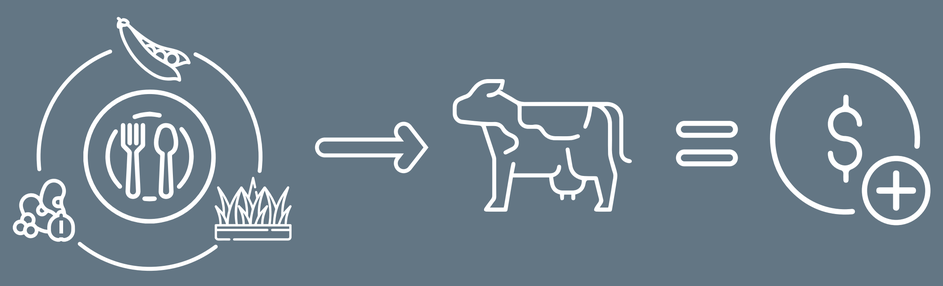


Figure 1. Sensitivity analysis NPV (profitability) – Pasture improvement measures and supplementation IL 1.5 %

- Dairy productivity and discount rate account for 73.4% and 23.8% of the profitability, respectively.
- Milk prices are regulated, so milk productivity plays a key role in economic performance.

CONCLUSIONS

Diversifying cattle diets with legumes is an effective means of improving the incomes and reducing uncertainty of smallholder farmers.



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