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86. Cattle ranching in the Amazon: quantifying synergies between intensification, mitigation and profitability

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Thanks the recent zero-deforestation policies, cattle ranching systems in the amazon are engaged in an intensification process, in order to produce more beef or milk in a smaller pasture area. A large set of new practices in the farms, especially about cattle alimentation and land-use diversification, potentially change the environmental footprint of the activity. However, no system or large experiment are available in the region, to evaluate and monitor these gains in terms of emissions and energy balance, for this activity historically responsible for large deforestation, emissions and natural resources waste.

The authors present in this paper a three-year research results, adapting a European analytic tool, able to quantify at the farm scale the GES emissions, the energy balance, and the gross margin (Planet method). After parameters and conception adaptations, the tool has been applied in 35 farms in a Paragominas region, state of Pará, Brazil, known for the "green livestock dynamic". The sample is representative of the diversity of farms, in terms of size, livestock systems and intensification level. The results show the large difference between the traditional extensive systems, and the innovative practices. They indicate what kind of practices allow the best trade-off between intensification and environmental footprint, to optimize the use of ecosystem resources like water, solar energy, trees and organic matter in the soil. These results can be used to identify efficient intensification and mitigation pathways, relative to the farm diversity, as discussed in this communication. In conclusion, authors explain that the innovative process for mitigation should be monitored at the landscape or jurisdictional level, in complement to the farm level.