Tropentag, September 18-20, 2019, Kassel

"Filling gaps and removing traps
for sustainable resource management"

Climate Smart Livestock: The Interaction between Mitigation, Adaptation and Efficient Livestock Management Practices in Ecuador

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Abstract

Livestock supply chain greenhouse gas emissions account for 14.5 % of anthropogenic gases worldwide, which indicate that the sector is an important GHG contributor. In addition, this sector plays a significant role for income and employment generation. At the same time, livestock productive activity is directly influenced by the impacts of climate change. For such reasons, identifying and implementing management practices that promote sustainable production in a climate change context, becomes a challenge. In Ecuador, the livestock production systems are evaluated from a climate-smart perspective by considering three objectives: 1. sustainably increasing productivity; 2. adapting to climate change; and 3. reducing greenhouse gas emissions whenever possible. The Climate Smart Livestock Project (CSLP) quantified GHG emissions from beef and dairy cattle in the country using local information to derive the estimates. For 2016, the preliminary results show a value of 16547 Gg of CO_2-eq from direct emissions, being 76.92 % CH_4 form enteric fermentation, 18.12 % NO_2 from manure in pastures, 2.66 % CH_4 and 2.30 % NO_2 from manure management. Regarding climate risk, the CSLP conducted a study to compare the relationship between intense rains, droughts, heat waves and frosts; with the exposure in three dimensions (environmental: pasture area, socioeconomic: number of animals per producer, governance: established productive associations). The results show that the increase of extreme events in drought and intense rains constitute threats with high impacts on livestock systems. Based on the preliminary results, the CSLP compiled 126 good livestock practices that contribute to a climate-smart management, a efficient production systems that are adapted to climate change and aim to reduce GHG. A customized set of practices were implemented on 165 pilot farms, being pasture and water sources management the most relevant factors for the development of intervention strategies at field level. The impact of implementing the practices in the pilot farms is monitored through two web apps, developed by the CSLP, applying algorithms to estimate emissions and climate risk using herd management (number of animals, production, reproduction, weights, etc.) and farm data (area, conservation area, pastures, infrastructure, etc.).

Keywords: Adaptation, climate change, climate risk, Ecuador, greenhouse gases

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