# **Can intensification of cattle ranching reduce deforestation in the Amazon? Insights from an agent-based social-ecological model (Updated January 29, 2023)**

NewsRx Science Daily

February 10, 2023 Friday

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**Section:** SOCIAL SCIENCES

**Length:** 326 words

**Body**

2023 FEB 10 (NewsRx) -- By a News Reporter-Staff News Editor at NewsRx Science Daily -- According to news reporting based on a preprint abstract, our journalists obtained the following quote sourced from osf.io:

“***Deforestation*** in the ***Amazon*** with its vast consequences for the ecosystem and climate is largely related to subsequent land use for cattle ranching.

“In addition to conservation policies, proposals to reduce ***deforestation*** include measures to intensify cattle ranching.

“However, the effects of land-use intensification on ***deforestation*** are debated in the literature. This paper introduces the abacra model, a stylized agent-based model to study the interplay of ***deforestation*** and the intensification of cattle ranching in the Brazilian ***Amazon***. The model combines social learning and ecological processes with market dynamics.

“In the model, agents adopt either an extensive or semi-intensive strategy of cattle ranching based on the success of their neighbors. They earn their income by selling cattle on a stylized market. We present a comprehensive analysis of the model with statistical methods and find that it produces highly non-linear transient outcomes in dependence on key parameters like the rate of social interaction and elasticity of the cattle price. We show that under many environmental and economic conditions, intensification does not reduce ***deforestation*** rates and sometimes even has a detrimental effect on ***deforestation***. Anti-***deforestation*** policies incentivizing fast intensification can only lower ***deforestation*** rates under conditions in which the local cattle market saturates.”

This preprint has not been peer-reviewed.

For more information on this research see: osf.io/preprints/socarxiv/x5q9j/

Keywords for this news article include: Climate Change, ***Deforestation***, Ecology, Global Warming, Social Sciences.

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**Load-Date:** February 10, 2023

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