

Press Release 13 October 2017

New study: Why farmers in the Brazilian Amazon persist in low-income activities that result in environmental damage

In the world's largest tropical agricultural-forest frontier, livestock production, which yields the lowest per hectare incomes, remains the most common land use in remote areas.

Millions of farmers across the tropics depend on agricultural practices that generate little income and often lead to widespread environmental degradation – even when there are higher-income alternatives available such as producing fruit or staple food crops, like rice and beans.

According to a new study in the eastern Brazilian Amazon, part of the reasons farmers persist with these low-income activities is a lack of access to markets and critical infrastructure, including roads, refrigerated transport, agricultural machinery, and supply chains linked to external markets for higher-income crops.

However, the researchers also found that potential income was not the only driver influencing farmers' decisions; factors such as social prestige and quality of life can play a strong role in shaping their behavior.

The study, published in the journal [*Ecology and Society*](#), uses a uniquely comprehensive dataset of social and environmental data from more than 600 households in the Brazilian state of Pará. These data were collected from interviews conducted between 2010 to 2011 by the [*Sustainable Amazon Network*](#).

The researchers found that even though agriculture was the largest source of income among the rural households studied, 75% of the households earned less than US\$10,000 from it per year.

Lead author, Rachael Garrett of Boston University, said: “We knew that cattle ranching was a low-income activity, but we were shocked by just how little money ranching generated – US\$250 per hectare on average, with some farms operating at a loss. Meanwhile, fruit farmers and horticulturists were earning \$3,300 per hectare – a whopping 1200% more than ranchers. Even producers of staple crops, like rice and beans were earning 600% more than ranchers.”

Cattle ranches were located far away from markets and lacked infrastructure and equipment that could allow them to produce higher-value crops. These conditions make any type of agriculture difficult. Yet households continued to pursue ranching because they had strong social ties to the practice – their families had always been ranchers, their friends were ranchers, and owning cattle provided them with social status.

Joice Ferreira, a co-author of the study from the Brazilian Agricultural Research Institution Embrapa, stated: “We often witness a failure of development programmes in the Amazon region because their scope is very limited. A focus solely on financial incentives for farmers is unlikely to solve poverty and environmental degradation issues because it does not address their root concerns, which are often not monetary.”

The researchers conclude that past efforts to promote changes in land use in the Brazilian Amazon have been hampered by a mischaracterization of farmer well-being in purely economic terms and a misunderstanding of the factors that motivate or limit farmers' decisions.

Toby Gardner, a co-author of the study from the Stockholm Environment Institute said: “The work underscores the need to develop policies and programmes that identify and differentiate households based on a broader set of household assets, cultural attributes, and aspirations than are traditionally considered. Current approaches to poverty alleviation and development are focused on conditional cash payments, credit access, and technical advice. But these policies alone do not address the real barriers to change – such as social lock-in and a lack of adequate infrastructure for high value crops.”

Read the study in Ecology and Society: [*Explaining the persistence of low income and environmentally degrading land uses in the Brazilian Amazon*](#)

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[**Sustainable Amazon Network**](#) (RAS) was created in 2009 and is formed by more than 30 institutions of Brazil and abroad, being coordinated by Embrapa, Emilio Goeldi Museum of Pará, Lancaster University (United Kingdom) and Stockholm Environment Institute. More than 100 researchers and students make up RAS, acting in different research lines and focusing in extracting social, economic and environmental data of the Amazon directed to the use of land, the conservation of the forest and the sustainable development of the region.

This press release was supported by editors from Brazilian startup [**Ambiental Media**](#).