Abstract:

This paper addresses the question as to whether it is profitable to apply a mechanical mulching technology (MT) in the Bragantina region of Brazil and assesses the technology's feasibility as an alternative to the slash-and-burn practices of the Amazon. Using empirical data collected from a prototype assessment and a few secondary sources, the paper employs a cost–benefit analysis of ‘with’ and ‘without’ technology cropping systems (plots that applied the technology are compared with those that did not) to assess the financial and economic feasibility of investing in the MT. The analysis showed that the technology is profitable, both financially and socially, mainly because it is able to produce yields that are high enough to offset the costs, including the hiring of the mulching equipment. However, it may not be a feasible alternative to slash-and-burn farming unless certain conditions are fulfilled by farmers. Most of these conditions relate to farmers’ adherence to a set of rules for the successful application of the technology. These rules include the abandonment of a single cropping cycle, typical for the traditional slash-and-burn system, and the adoption of two cycles of crop cultivation. In addition, farmers have to choose profitable crop combinations, such as cassava and beans for both cycles. Since most of the trial farmers did not meet these conditions, the technology received a notably low acceptability (8%). Further analysis indicated that the main reason for this trend was the increase of total labor requirement (by 32%), though the technology reduced labor demand during land preparation to almost zero. Similarly, there was a 22% increase in requirement for inorganic fertilizers. Thus, compared with the slash-and-burn practices of the Amazon, the MT can be regarded as a more intensive method of farming which gives higher crop yields but demands higher quantities of inputs such as labor and inorganic fertilizers. The paper concludes by deriving policy implications for the feasibility of the MT as an alternative to slash-and-burn agriculture in the Amazon. Among these is the importance of creating incentives to extend the cropping period from one to two consecutive cycles. Moreover, the necessity to conduct further studies after the technology has been adopted by the farmers is underscored.