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**ENERGY ANALYSIS OF FAMILY FARMING PRODUCTS IN ALTERNATIVE
FOOD NETWORKS: A LIFE CYCLE PERSPECTIVE**

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This study proposes a methodology for conducting an Energy Analysis of family farming food products within Alternative Food Networks (AFNs) in Brazil, adopting a rigorous life cycle perspective. The research addresses a significant gap in literature, which is currently dominated by North American and European contexts. It also represents a dedicated effort to identify opportunities for reducing the energy costs of food, through both innovative AFN organizational arrangements and the implementation of agroecological transition practices. The methodology is based on detailed interviews focused on material and energy accountability. It generates food energy intensity results segmented by life cycle stages and for specific products, including, for example, milk, peeled cassava, beans, peeled pumpkin, garlic, and cassava flour. A central objective is the adoption of consistent methodological choices that account for the fundamental differences between family farming/AFNs and the “conventional” industrial food

system. To achieve this, the framework utilizes flexible system limits and allocation criteria that mirror the specific management decisions and perceptions of farming families. Furthermore, the study introduces an original life cycle structure specific to family farming. This structure highlights internal and manufactured inputs, rural family agro-industrial processing, and localized transportation and retailing, thereby broadening the analytical scope beyond primary production to cover the entire “scope of family farming operations”. The methodology was validated through four case studies in the State of Goiás, Brazil, involving families engaged in farmers' fairs, basket schemes, farm-to-school programs, and home deliveries in 2019. Preliminary results confirm the viability of this approach, providing a framework for comparisons with conventional food systems wherever equivalent data is available. The findings detail how energy flows are intrinsically linked to family farming food products life cycle stages and to the strategies and practices adopted in AFN arrangements and agroecological transition processes.

Palavras-chave: energy analysis; alternative food networks; life cycle assessment; agroecological transition; family farming.