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“CLEANER PRODUCTION TOWARDS A SUSTAINABLE TRANSITION”

## Emergy Accounting of Milk Production System: Is the Organic Label a Synonymous with Sustainable Production?

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### Abstract

Agricultural production under organic handling can be found in different regions of Brazil and it is still under continuous expansion. Organic handling is an alternative production system which produces healthier food compared to chemical traditional agriculture. To be labeled as organic, the production system must comply with requirements of Law no. 10,832/03 which supplies definitions and rules aiming to constrain the use of some inputs into the production system. Notwithstanding, organics are usually considered as synonymous of sustainable products, but quantitative information supporting this statement is rarely found in literature. This raises doubt about the sustainable label associated to all organics. This work aims to evaluate the relation of binomial organics-sustainable by considering as case study a certified organic milk production system located in São Paulo State, Brazil. Emergy accounting (with an “m”) is the scientific methodology used to quantify sustainability. Results indicate that organic system (OS) has low renewability (%R of 19%), it explores natural resources in an inefficient way which results in high demand for resources from economy (EIR of 3.63 and EYR of 1.23), it demands high amount of non-renewable resources which causes moderate load on environment (ELR of 4.07), and finally it has low sustainability (ESI of 0.30). All these obtained emergy indices show lower performance when compared to values for agricultural ecological systems found in literature. In this sense, the OS evaluated should not be labeled as sustainable, overthrowing the thesis of which organics are synonymous of sustainable. Anyhow, it is suggested that other methodological approaches be used simultaneously with emergy accounting to assess sustainability under different perspectives of scale and time.

**Keywords:** Emergy; Organic milk production; Sustainable indicators.