The metabolic approach for a better understanding of the socio-ecological issues associated with the development of agricultural methanisation

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Abstract

Today's agricultural and food systems face a variety of constraints (environmental, economic, regulatory and social), encouraging rapid changes. These include diversification into non-agricultural activities and biomass energy recovery, including agricultural methanisation. The Grand Est region has the largest methanisation capacity in France, and is aiming for 264 units by 2030, in line with the French law on green growth. Marty et al (2021) have shown that the expansion of anaerobic digestion in northern Aube is creating major competition for biomass of agricultural origin, a resource whose management is at the interface of different national and local strategies (agri-food and energy), and for which decision-makers lack the systemic tools for appropriate planning. Territorial metabolism is an interesting way of analyzing the circulation and circularity of agricultural biomass flows, identifying interactions and competition phenomena between agricultural methanization and other sectors such as sugar beet, alfalfa and livestock farming, and grasping the issues relating to biogeochemical cycles thanks to a metabolic approach focusing on nitrogen and carbon and decarbon energy flows.

Keywords: Territorial metabolism, agricultural methanization

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