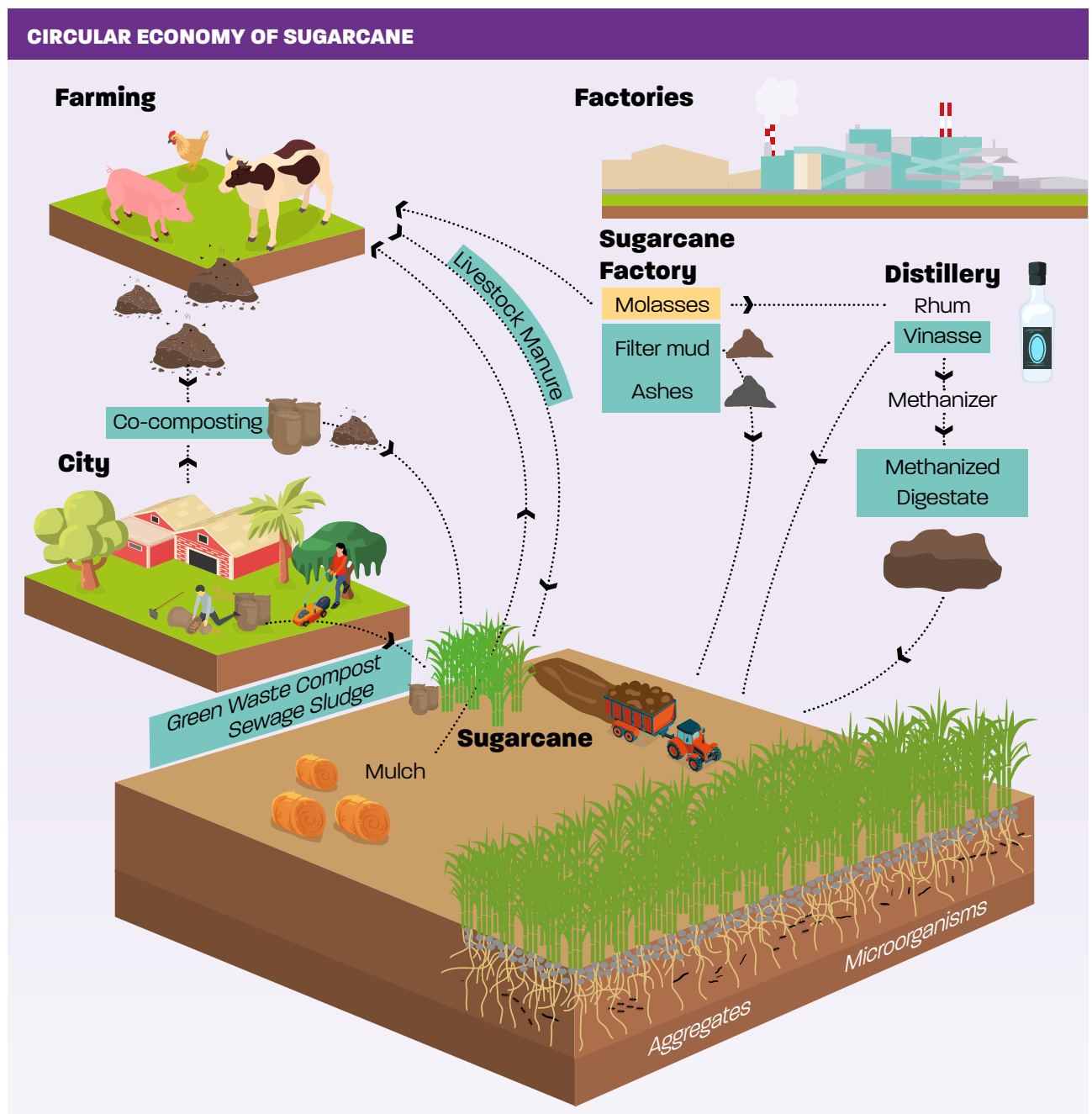


FRENCH SUGARCANE EXPERTISE



SUSTAINABLE MANAGEMENT OF CROP FERTILIZATION AND SOIL FERTILITY

Fertilization practices have a major impact on sugar yields, while also being the source of multiple forms of pollution. Enhancing the planning and management of fertilization practices to boost the efficacy of fertilizers is crucial for the eco-environmental sustainability of sugarcane farms. Agricultural recycling of Exogenous Organic Matter (EOM) provides an alternative to chemical fertilizer applications. This agroecological practice helps mitigate global warming while improving soil fertility and must be managed locally in a circular economy setting.



BOOSTING THE AGROENVIRONMENTAL PERFORMANCE OF FERTILIZATION PRACTICES

The challenge in fertilization planning and management is to determine the optimum dose and methods for chemical fertilizer and Exogenous Organic Matter (EOM) application, and to meet sugarcane crop needs while limiting losses into watercourses and the atmosphere. Research is thus under way in Réunion (SOERE PRO project) to gain insight into the biogeochemical cycles of nitrogen (N), carbon (C) and phosphorus (P) in sugarcane agrosystems fertilized with different types of material (step sludge, pig manure and poultry litter).

PROMOTING EOM AS A FERTILIZER SUBSTITUTE

Substantial balanced fertilizer applications are essential to maintain and even improve sugarcane production levels. Research is currently under way on various fertilizers and amendments to help cost-effectively meet this need while ensuring environment-friendly production. This work is focused on both mineral

fertilisers—which still fulfil most of the sugarcane crop nutritional needs—and various EOMs, which are local sources of nutrients that could eventually replace mineral fertilizers. Other work is also being carried out to hamper nitrogen volatilization by burying fertilizers under cane straw mulch. The substitution of chemical fertilizers by EOM is highly dependent on the availability, transport and transformation of organic matter on a territorial scale. Work is hence under way in Réunion to promote synergy between stakeholders with the aim of providing the agricultural community with access to EOMs tailored to their specific needs.

IMPROVING SOIL FERTILITY

Minimum tillage is a strategic means of improving soil fertility. During planting, different practices and tools for destroying sugarcane stumps have been tested and proven: the use of glyphomulch, localised stump chopping machinery and direct furrowing save time, reduce costs and help safeguard the soil.

Finally, the BioFuncTool® soil health assessment tool is being implemented to assess the impacts of agroecological practices on the chemical, physical and biological components of soil fertility.



Long-term organic fertilization experiment
– TERO project



BiofuncTool® - basal soil respiration



Pig manure spreading - TERO project



Fertilizer drill machine



Biofunctool®: Installation of Bait Lamina > indicator of the activity of the soil mesofauna

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