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Study of improvements in the generation of biogas from swine manure.

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The study aims to propose improvements in the management of swine biomass and biodigestion systems to improve the biogas production potential. The work was elaborated from two topics: Improvements to biomass management and improvements to biodigestion systems. The proposal of improvements for the management of biomass was based on experience acquired in the field using case studies to elucidate. Already the proposal of improvements of biodigestion systems, was based on analysis of operational, constructive and safety aspects. The results obtained for the biomass management pointed out the need for structural adjustments in the facilities for pigs. One of the main factors is the irrational use of water in the cleaning of the bays that can considerably dilute the

biomass affecting the production of biogas. Regarding the improvements for biodigestion systems, we can cite the difficulty of controlling operational aspects such as temperature in small biogas plants as a function of the biodigester model used (plug flow digester). The structural aspects analysed demonstrate the need to introduce solid separation systems before the biodigester for the good functioning of the plant. The safety aspects analysed highlight the need to identify areas of risk of explosion and fire and colour signalling of the pipes in the units facilitating maintenance. Thus, it is evident that small systems of production of biogas and biofertilizer from swine residues lack standardization.

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