Methane productivity of manure, straw and solid fractions of manure

The methane productivity of manure in terms of volatile solids (VS), volume and livestock production was determined. The theoretical methane productivity is higher in pig (516 1 kg(-1) VS) and sow (530 1 kg(-1) VS) manure than in dairy cattle manure (469 1 kg(-1) VS), while the ultimate methane yield in terms of VS is considerably higher in pig (356 1 kg(-1) VS) and sow manure (275 1 kg(-1) VS) than in dairy cattle manure (148 1 kg(-1) VS). Methane productivity based on livestock units (LU) shows the lowest methane productivity for sows (165 m(3) CH4 LU-1), while the other animal categories are in the same range (282-301 m(3) CH4 LU-1). Pre-treatment of manure by separation is a way of making fractions of the manure that have a higher gas potential per volume. Theoretical methane potential and biodegradability of three types of fractions deriving from manure separation were tested. The volumetric methane yield of straw was found to be higher than the yield from total manure and the solid fractions of manure, due to the higher VS content, and hence the use of straw as bedding material will increase the volumetric as well as the livestock-based methane productivity.

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