

**EVALUATION OF THE COST BENEFIT RATIO OF USING PIG SLURRY AS  
AN ORGANIC FERTILIZER IN THE MUNICIPALITY OF PRESIDENTE  
CASTELLO BRANCO, SC**

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The western region of Santa Catarina stands out for the intensive production of animals, especially pigs, broiler chickens and dairy cattle. In this territory, the transport service and disposal of pig slurry is a great challenge, since most rural properties do not have enough agricultural area to use this material as fertilizer, making it necessary to transport it to other places. Despite the presence of nutrients with fertilizing power in the pig slurry, depending on the distance it will be transported, the cost-benefit ratio of its use is not always positive. In this context, the objective of this article was to evaluate the cost-benefit ratio (CBR) of the pig slurry distribution service, taking as reference data from the tractor fleet of the Municipal Secretariat of Agriculture and Environment (SMAMA) from Presidente Castello Branco (SC), a small municipality that well represents the reality of animal production in the region. In order to calculate the costs of applying pig slurry, the market prices per hour/tractor machine (hM) in the regional market, provided by the CEPA Institute, in the period 2013-2022 (INFOAGRO) were used as a reference. In turn, the benefit was calculated from the average amount of 5.21 kg of NPK per cubic meter of the pig slurry (2.1% DM), multiplied by the average price of the mineral equivalent. The monitoring and analysis of data from the SMAMA fleet revealed that the predominant situation is the transport of waste using tractors coupled to tanks with an average capacity of 4m<sup>3</sup>, which can carry out three loads of waste per hour, totaling an average volume of 12m<sup>3</sup> of waste per hour. Considering the historical average of the fertilizer value and the hourly cost of the tractor machine over the last ten years, period 2013-2022, it appears that the cost-benefit ratio is only positive from a minimum transport of 7.2m<sup>3</sup> of the pig slurry per hour machine, a condition that is not met in 30% of the total the services carried out by the SMAMA fleet. In turn, in the monitoring period of the SMAMA fleet (2020 to 2022), it was found that in the three years the BCR was positive for the use of the pig slurry (CBR>ZERO), with the least favorable year being 2020, when the minimum volume of waste to be transported needed to be 6.5m<sup>3</sup> / hM. In turn, the year 2022 was the most favorable, as the transport of 3.2m<sup>3</sup> / hM would be enough for the CBR to be positive. Finally, in monetary terms, considering that the fleet of SMAMA machines annually transports an average of 33,020m<sup>3</sup>, an estimated annual benefit is obtained, resulting from the reduction in the purchase of mineral fertilizer, of the order of \$90,000.00 Despite this positive economic relationship in the use of the pig slurry as an organic fertilizer, it is necessary to better qualify this policy, since aspects related to the quality of the manure and the operational control of the fleet of machines are not being properly observed.