

THEME 9 | RUMINANT NUTRITION AND PRODUCTION

Quantification of total nitrogen in dairy cattle manure fed different diets

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The dairy cattle manure are solid wastes composed of organic material, that can be characterized by their content of nutrients. The objective of this work was to quantify total nitrogen (N) in dairy cattle's manure fed with diets which contained different protein percentages. The research was carried out in the dairy production system of Embrapa Pecuária Sudeste, located in São Carlos, SP, from April 2015 to March 2016. Fourteen lactating cows of the Jersey and Holstein breed were selected to compose two experimental groups. The animals received diets with the same composition of ingredients (corn, soybean meal, mineral salt and sodium bicarbonate) but with different levels of protein in the concentrate. Group 1 received concentrate with 20% crude protein (CP), and group 2 received concentrate with protein content adjusted to animal needs, throughout lactation. The manure were collected monthly, and the Kjeldahl method was employed for the quantification of N in the manure. The mean value of N found in group 1 was 20.1 g kg⁻¹ and group 2 was 20.7 g kg⁻¹. The maximum N values obtained were 21 g kg⁻¹ and 22.1 g kg⁻¹ for group 1 and 2, respectively. And the minimum value of N found was 19.7 g kg⁻¹ and 18.9 g kg⁻¹ for group 1 and 2, respectively. Due to the small numerical difference in the N content of the manure, there was no difference in the characterization of the solid residues of both groups. Thus, the feasibility of using this waste as organic fertilizer represents an alternative to transform waste materials into useful products. In the country's current economic scenario, the use of diets with lower protein value is a less costly option, resulting in residues with similar nutrient value (N), which becomes an economic advantage for the producer, lowering his cost of production and increasing the yield of the plantations. In situations where waste occupies areas such as corral and milkingparlor, it would be considered as a potential source of contamination and pollution, which needs to be eliminated from the environment by a cleaning process. But if waste were used as fertilizer, it would avoid water consumption for cleaning and would also prevent the contamination of water bodies. Due to the economic and environmental benefits described, it is concluded that the characterization of the waste is useful both to manage production costs and residues.

Keywords: bovine manure, protein content, solid residues

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