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## RESUMO

Medicine costs is affected by the incidence and prevalence of sick animals in the herd. Farm's facilities have a major influence on the animal's health, once animals placed in facilities that cause their exposure to climate factors can often increase diseases. Thus, we aimed to compare the medicine costs of dairy operations in Compost Bedded Pack (CBP), Free Stall (FS), and Drylot (DL) systems. We collected data from 960 Brazilian farms over 120 consecutive months. The production level of the farms ranged from 150 to 10,000 L of milk/day. Milk production of the farms was calculated by converting revenue beef sales (surplus animals) to the equivalent amount in milk with the same revenue and called the equivalent milk production equivalent (MYeq). Medicine cost was modeled for two animal production categories: milking cows (MC) and non-milking animals (NMA). We used a regression model that included linear and quadratic parameters, and we added the production system as a fixed variable for all parameters tested with this model. Consultant, year, herd, and herd  $\times$  system interaction were included in the model as random variables. Medicine costs (\$/farm/year) were quadratically (convex) related to MYeq for MC. Both parameters,  $\beta_1$  and  $\beta_2$ , were affected by production system ( $P < 0.10$ ). DL had the most demand for medicines in MC, followed by CB. In farms where milk production surpasses 5,000 L/day, costs for medicine with MC, in CB, exceeded those in FS. For NMA, medicine costs were quadratically (convex in FS and DL; concave in CB) related to MYeq ( $P < 0.10$ ) (Table 4). Both parameters,  $\beta_1$  and  $\beta_2$ , were affected by production systems ( $P < 0.10$ ). DL had the most demand for medicines, followed by FS. When considering NMA, with MYeq above 4,000 L/day, there was greater medicine use in FS when compared to CB. In summary, drylot system had the greater medicine cost at all levels of milk production, followed by the free stall and compost barn. Drylot animals are more vulnerable due to exposure to climatic factors and environmental parasitologies. These characteristics may have been the most determining factors in the incidence and prevalence of sick animals in the herd, increasing their medicine cost. According to the literature, free stall systems may increase both the incidence and prevalence of lameness and udder injuries due to the concrete floor, with consequent impact on medicine costs. Lastly, compost bedded pack may promote better thermal comfort and the literature reports a lower incidence of mastitis in this system, as it promotes greater udders cleanliness. Thus, compost bedded pack can be promising in the reduction of medicine costs, as its animals presented better health.

**PALAVRAS-CHAVE:** Nutrition and production of ruminants, Compost bedded pack, Drylot, Free stall, Profit

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