NUTRICIONAL REQUIREMENTS OF NET ENERGY FOR MAINTENANCE OF GIR, HOLSTEIN AND F1 HOLSTEIN-GIR HEIFERS

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In Brazil we formulate diets for dairy cattle using NRC data because we don’t know the nutrient requirements of dairy zebu cattle and their crossbreds. The objective of this research was to determine the nutritional requirements of net energy for maintenance (NEm) of Gir, Holstein and crossbred F1 Holstein-Gir heifers using respirometric technique. The concentration of injected gases (carbon nitrogen, methane and carbon dioxide) during a period of 12 hours was compared to the analysed values. Correction factor was calculated by the relation between these values (Lachica, 1995). Eighteen heifers were used: six Gir, six Holstein and six crossbred. The averaged live weight (LW) was 300kg. Body condition score was uniformized during the adaptation period. Animals were considered adapted when the dry matter intake inside the chamber was similar to outside. Animals fed Tifton (Cynodon spp.) hay in order to maintain the LW. The NEm can be estimated by fast heat production. The volume of CH₄ and produced and the volume of consumed O₂ were measured. The heat production was calculated (Brower, 1965):

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HP = (16.18 \times VO_2) + (5.02 \times VCO_2) - (2.17 \times VCH_4) - (5.99 \times Nur)
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The measurements in were done by a minimum period of 24 hours. The heat production in the third day (without food) is equal to the fast heat production. Table 1 shows the average values of NEm in Kcal/BW⁰.⁷⁵. The lowest value was gotten for the Gir heifers (83.1 Kcal/BW⁰.⁷⁵). Holstein and crossbred heifers had similar NEm (94.9 Kcal/BW⁰.⁷⁵).

Statistical data were evaluated by test SNK (P< 0.05).

We can conclude that Gir heifers have lower NEm than Holstein and crossbred F1 Holstein-Gir.

References:
