

Livestock is considered as one of the sectors with the most potential for global warming due to the volume of greenhouse gas emission, mainly coming from animal enteric fermentation. Brazil is one of the main producers and exporters of beef in the world, with the main area of animal production in the Midwest region. Thus, the goal of this study is to identify GHG emissions from different beef production systems in the Midwest region. The methodology used was the environmental life-cycle assessment. Production system IV, with animal slaughter at 20 months old and 510 kg live weight, obtained the lowest greenhouse gas emissions per live weight kilogram, 15.5 kg CO<sub>2</sub> eq. This procedure allows for reducing emissions per kg of live weight by 45% in relation to the base production system; the highest daily live weight gain reflected in greenhouse gas emissions reductions per kilogram of body weight. Production intensification strategies allow for higher daily live weight gain and increased yield per hectare, reducing greenhouse gas emissions. In addition, it reduces the need for new beef production areas.

