

**MATHEMATICAL MODELING OF TEMPORARY NON-SURGICAL STERILIZATION
OF DOGS AND CATS**

Santos, O^{1,2}; Garcia, R²; Ferreira F¹; Amaku M¹

¹ University of São Paulo, Department of Veterinary Preventive
Medicine and Animal Health, São Paulo, SP, Brazil

² Education and Animal Control Technical Institute, São Paulo, SP, Brazil

The objective of this study was to model the population impact of temporary non-surgical sterilization, different intervention rates, and reproductive status of recruited animals. A system of couple differential equations was used to simulate the fraction of sterilized animals through time, resulting from scenarios conditioned on sterilization rates and duration, as well as on reproductive status of recruited animals. The duration of action had a direct relation with the fraction of sterilized animals and an inverse relation with the cumulative number of sterilized animals. For the fraction of sterilized animals, the equilibrium point was achieved more quickly by sterilization methods with shorter duration of action. Compared with the impact of reproductive status of recruited animals, the sterilization rate produced greater increases on the fraction of sterilized animals. Increases in intervention rates of temporary sterilization achieved the same results obtained by permanent sterilization in some cases. Temporary sterilization may be a viable alternative if extra effort to achieve a result is compensated by costs easiness of implementation.