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Review

Nonsurgical fertility control for managing free-roaming dog populations: A review of products and criteria for field applications

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Abstract

About 75% of dogs worldwide are free to roam and reproduce, thus creating locally overabundant populations. Problems caused by roaming dogs include diseases transmitted to livestock and humans, predation on livestock, attacks on humans, road traffic accidents, and nuisance behavior. Nonsurgical fertility control is increasingly advocated as more cost-effective than surgical sterilization to manage dog populations and their impact. The aims of this review were to 1) analyze trends in numbers of scientific publications on nonsurgical fertility control for dogs; 2) illustrate the spectrum of fertility inhibitors available for dogs; 3) examine how differences between confined and free-roaming dogs might affect the choice of fertility inhibitors to be used in dog population management; and 4) provide a framework of criteria to guide decisions regarding the use of nonsurgical fertility control for dog population management. The results showed that the 117 articles published between 1982 and 2011 focussed on long-term hormonal contraceptives, such as gonadotropin-releasing hormone agonists, immunocontraceptives, and male chemical sterilants. The number of articles published biennially increased from one to five papers produced in the early 1980s to 10 to 20 in the past decade. Differences between confined dogs and free-roaming dogs include reproduction and survival as well as social expectations regarding the duration of infertility, the costs of sterilization, and the responsibilities for meeting these costs. These differences are likely to dictate which fertility inhibitors will be used for confined or free-roaming dogs. The criteria regarding the use of fertility control for dog population management, presented as a decision tree, covered social acceptance, animal welfare, effectiveness, legal compliance, feasibility, and sustainability. The review concluded that the main challenges for the future are evaluating the feasibility, effectiveness, sustainability, and effects of mass nonsurgical sterilization campaigns on dog population size and impact as well as integrating nonsurgical fertility control with disease vaccination and public education programs.

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