

NEAR-TERM IMPACT: GONACON IN MALE AND FEMALE CATS

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Free-roaming unowned stray and feral community cats exist throughout the world, creating concerns regarding their welfare as well as their impact on the environment and on public health. Millions of healthy cats are culled each year in an attempt to control their numbers. Surgical sterilization followed by return to the environment is an effective non-lethal population control method but is limited in scope because of expense and logistical impediments.

Immunocontraception has the potential to be a more practical and cost-effective method of control. Functional characteristics of an ideal immunocontraceptive for community cats would include a wide margin of safety for target animals and the environment, rapid onset and long duration of activity following a single treatment in males and females of all ages, and sex hormone inhibition. In addition, product characteristics should include stability and ease of use under field conditions, efficient manufacturing process, and low cost to the user. GnRH is an ideal contraceptive target because it regulates pituitary and gonadal hormone responses in both males and females, thus suppressing nuisance behaviors associated with sex hormones in addition to preventing pregnancy. GonaCon is an immunocontraceptive vaccine consisting of synthetic GnRH conjugated to a carrier protein and mixed with an adjuvant containing mycobacterium and oil in a stiff water- in-oil emulsion. GonaCon is registered with the Environmental Protection Agency for control of female white tail deer, wild horses, and burros.

GonaCon was administered as a single injection to confined male and female cats and assessed for its contraceptive effect by monitoring hormone levels, anti-GnRH antibody titers, and reproduction in breeding trials. There was a strong correlation between antibody titer level and infertility. Response in males was characterized by undetectable serum testosterone, azoospermia, loss of secondary sex characteristics, and infertility, but the timing and duration of response were unpredictable. In females, 93% of vaccinated cats remained infertile for the first year following vaccination, whereas 73, 53, and 40% were infertile for 2, 3, and 4 years, respectively. At the end of the 5-year study, 27% of cats were still infertile. Non-painful but persistent late-onset granulomatous injection site masses appeared 2 years after initial vaccination in five cats. GonaCon demonstrated long-term suppression of fertility in cats following a single dose and is a promising tool for community cat control programs.