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The use of deslorelin implants to induce oestrus in two seasonal canids, silver- (*Vulpes vulpes*) and blue fox (*Vulpes alopex*)

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To ensure optimal use of artificial reproductive techniques in wild and captive canids oestrus induction and synchronization of females may be necessary. Here, the aim was to elucidate whether the GnRH agonist deslorelin would induce oestrus and ovulation in two canid seasonal species, the silver- and blue fox, kept caged under natural light and temperature, but differing in time from their natural breeding season by 0.5 (Late Jan-March) and 3 months (March-May), respectively. Oestrus induction was attempted primo January 2014 in 40 females (2-5 years), 20 silver foxes (SF) and 20 blue foxes (BF). The females were randomly allocated to one of the following three groups: 10 of each species received Ovuplant® (O, 2.1mg s.c. implant, Dechra, UK), and 10 of each species received Suprelorin® (S, 4.7mg s.c. implant, Virbac, Norway). Ten females (control, C) (5BF+5SF) received 1ml NaCl inj. s.c. All 50 vixens were examined daily to assess vulvar oedema (scale 0-4), turgidity and colour. Vaginal resistance measurements were done if or when the vulva had enlarged sufficiently to allow insertion by an ohmmeter (SLI-Heat Detector™, Lima AS Sandnes, Norway)[1]. The farmer monitored oestrus development in vixens for 40 days after treatment, whereafter females were euthanased for pelts, and ovaries and uteri were examined at autopsy. We collected blood samples by cephalic venipuncture on day of treatment (0) and on days 8,12,15,20, 40 after treatment. The Central Laboratory at NMBU (Oslo, Norway) did serum progesterone (P4) analysis by a solid-phase, competitive chemiluminescent enzyme immunoassay validated for canine serum (Immucell 2000™ (Siemens Healthcare Diagnostics Products Ltd. NJ, USA). Statistical analyses involved estimation of associations between the independent variables: treatment (S, O, and C) and species. The dependent variables vulva score (0-4), vaginal resistance (ohm) and serum progesterone (nmol/l) were assessed by generalized mixed models in SAS.[2] Overall statistical significance was assessed by the type III F-test and Tukey-Kramer multiple comparison adjustment employed for the pairwise difference in least squares (LS) means. All treated vixens (S and O) responded by vulvar enlargement and increasing resistance measurements, silver foxes had significantly higher vulva score. Altogether 12 of 20 (60%) BF ovulated (increasing P4 and visible CLs), of which 8O and 4S, respectively. Among SF females 18 of 20 (90%) animals ovulated, equally distributed in both treatment groups (9O and 9S). Maximum P4 values occurred on day 12 after treatment. None of the controls ovulated, and their P4 values and vulva scores remained baseline throughout the observation period. Vaginal electrical resistance measurement was not possible in controls due to small vulvae. O resulted in significantly higher progesterone concentrations in treated than in controls, but the difference between S and O was borderline non-significantly different after application of the Tukey-Kramer adjustment. Downregulation (i.e.declining progesterone values) began 20 days after treatment and was apparent at day 40. Hence, deslorelin induced oestrus and ovulation in both fox species, but the response was species-, season- and dose-dependent.