A low-selenium diet increases thyroxine and decreases 3,5,3'-triiodothyronine in the plasma of kittens

The effect of a low-selenium diet on thyroid hormone metabolism was investigated in growing kittens. Twelve specific-pathogen-free kittens with ages ranging from 16 to 18 weeks were divided into two groups of equal number with equal sex distribution in each group. One group was fed a yeast-based low-selenium diet (0.02 mg Se/kg diet) while the other group was fed the same diet supplemented with Na₂SeO₃ at 0.4 mg Se/kg diet for 8 weeks. Food intake, body weight and body weight gain were not affected by the low-Se diet during the study period. However, kittens given the low-Se diet had significantly reduced plasma selenium concentration and glutathione peroxidase activity. Plasma total thyroxine (T4) increased and total 3,5,3'-triiodothyronine (T3) decreased significantly in kittens fed the low-Se diet at the end of the study. These results suggest that type 1 deiodinase in cats is a selenoprotein-or a selenium-dependent enzyme.


Natural transmission routes of Neospora caninum between farm dogs and cattle

Twelve dairy herds with evidence of post-natal infection with Neospora caninum were compared with 21 control herds with no evidence of post-natal infection. On the former farms, dogs consumed placenta or licked uterine discharge in 75 and 67% of the farms, respectively, while on control farms these activities occurred in 38 and 24% of the farms, respectively. On all control farms and all but three post-natally infected farms the dogs were fed colostrum or milk. Defecation of dogs on the feeding alley was observed in 92% of the post-natally infected farms and in 24% of the control farms. The same trend was observed for defecation of dogs in grass silage, in 75% of the post-natally infected farms and in 19% of the control farms; and in corn silage, in 50% of the post-natally infected farms and in 10% of the control farms. Consumption of placenta, material of aborted foetuses or uterine discharge in combination with defecation on the feeding alley, storage of grass or corn silage was observed in 19% of the control farms and in 75% of the post-natally infected farms. This study supports the hypothesis that farm dogs may become infected by foetal fluids or placental material of infected cattle, and may subsequently cause a post-natal infection of cattle in the herd by shedding oocysts.


Effect of climate on the response to three oestrous synchronisation techniques in lactating dairy cows

The reproductive efficiency of Friesian dairy cows was investigated in a three (oestrous synchronisation technique) x two (seasons of the year) factorial design. The 90 primiparous and multiparous cows (winter, n=42; summer, n=48) were allocated at random to three synchronisation treatments (n=30 cows per treatment). In treatment 1 (GPG), the cows were administered 15 mg PGF₂α i.m. at 30±3 days postpartum, 100 microg GnRH i.m. at 5±3 days and 15 mg PGF₂α 7 days later. A second 100 microg dose of GnRH was given after, further 2 days and fixed time AI occurred 16-20 h later. In treatment 2 (PG-PG), 15 mg PGF₂α was administered i.m. to each cow on three occasions at successive 14 days interval starting at 30±3 days postpartum and the cows were inseminated at observed oestrus following the third dose of PGF₂α. Cows in treatment 3 (PG) had a single administration of 15 mg PGF₂α i.m. at 57±3 days postpartum and were inseminated as in treatment 2. Mean daily ambient temperature was 10.9°C in winter (November-March) and 20.2°C in summer (June-October). The cows were confined in an open-fronted shed and had ad libitum access to a complete diet with 37:63 forage to concentrate ratio. Body condition score was assessed at 57±3 days postpartum. Cow rectal temperature at insemination, milk yield, reproductive data and climatic variables were recorded. Blood samples were collected for progesterone assay on days 4, 11, 18, 25, 32, 39 and 46 post-AI from 54 of the cows (19 GPG; 17 PG-PG; 18 PG).

Pregnancy rate to first AI was 36.7% (11/30) for GPG and 16.7% (5/30) for both PG-PG and PG treatments. The difference was not significant. The cumulative pregnancy rate after third AI were GPG 83.3% (25/30), PG-PG 60.0% (18/30) and PG 60.0% (18/30; P=0.057). The cumulative pregnancy rate for cows inseminated in the winter (81.0%; 34/42) was higher (P<0.01) than for those inseminated in the summer (56.3%; 27/48). The interval from calving to first service was shorter (P<0.05) in treatment PG-PG (65.4±1.3 days) than in PG (69.2±1.3 days). Mean plasma progesterone concentrations post-AI of pregnant cows were higher (P<0.001) for GPG cows than those for PG-PG and PG cows. Plasma progesterone levels of pregnant cows tended to be higher (P=0.087) in winter than in summer. In conclusion, although the cumulative pregnancy rate was higher for GPG cows, it may be appropriate to correct the nutrition and management of the herd before resorting to synchronisation techniques to improve animal reproductive performances.

Behaviour of laying hens in two types of aviary systems on 25 commercial farms in Sweden

Fifty-one flocks of laying hens were studied in two high-density loose-housing systems on 25 commercial farms in Sweden as part of a government test programme for evaluating new systems for laying hens. Six different hybrids were used in group sizes ranging from 250 to 5000 birds. Stocking-densities varied from 10.2 to 19.1 birds per m² floor area. No birds were beak trimmed. The distribution of birds in the system, the frequency and location of aggressive pecks and feather pecks, the dust bathing activity and the birds' fear reaction to the keeper and to a novel object were measured. Direct behaviour observations were carried out twice per flock, at weeks 35 and 55. The proportion of birds at the different locations was relatively constant across the 8-h observation period in the tiered system, but changed over time in the perch system, which may reflect a difference in access to resources between the systems. At night the top perches/tiers were preferred although when stocking-density increased, other sites were also used. Aggression occurred mainly on the litter or in the nest areas. It did not differ between hybrids, but increased with age in the tiered system. Feather pecks occurred mainly on the litter. Brown hybrids feather pecked more than white ones, while white hybrids reacted more both to the keeper and to a novel object than did the brown hybrids. It was concluded that access to nests was insufficient in both systems, as was litter space. Feed space was insufficient in the tiered system if food requirements increased. Design of the top perches, in the perch system, should be improved to allow birds to perch high up in the system without blocking access to feed etc. for others.


Utility of maternal serum total testosterone analysis for fetal gender determination in Asian elephants (Elephas maximus)

It has been shown in some species that fetal testes produce testosterone early in gestation. This study investigated the possibility that fetal testosterone may be reflected in maternal serum levels in the Asian elephant (Elephas maximus). Weekly serum samples were collected from seventeen pregnant captive Asian elephants and analyzed via radioimmunoassay (RIA) for total testosterone levels. Nine of the cows carried male fetuses and eight carried female fetuses. A non-random pattern over time (P<0.01) was observed in cows carrying either a male or female fetus. Mean maternal serum total testosterone was significantly higher in cows carrying male versus female fetuses (P<0.01). Mean trimester values indicate that first trimester values are not significantly different among male versus female groups. The second and third trimester values of cows carrying male fetuses were higher than cows carrying female fetuses, (P<0.01 and <0.05, respectively). The results of this study show that it is possible via RIA of maternal serum for total testosterone to determine the gender of calves during gestation.


Prevalence of intestinal parasites in dogs from Sao Paulo State, Brazil

The prevalence of gastrointestinal parasites in stray dogs, and dogs with owners was investigated by fecal examinations from 271 dogs employing sedimentation, simple flotation and centrifugation-flotation methods. The centrifugation-flotation method, when compared to simple flotation or sedimentation methods was generally more accurate in the diagnosis of all intestinal parasites, but statistical differences were detected only in relation to Giardia spp. and Cystoisospora spp. (synonym Isospora spp.). The following parasites, with their respective prevalence, were diagnosed in the fecal samples: Anclylostoma spp. (23.6%); Toxocara canis (5.5%); Trichuris vulpis (4.8%); Spirocerca lupi (1.9%); Dipylidium caninum (0.7%); Giardia spp. (12.2%); Hammondia heydorni (2.6%); Cystoisospora spp. (8.5%); and Sarcocystis spp. (2.2%). The prevalence of most parasites was similar for dogs of mixed-breed and for dogs of a defined-breed, except for Cystoisospora spp. and T. canis which showed a significantly higher prevalence in mixed-breed dogs. The prevalence of Anclylostoma spp. (17.1%) was significantly lower in stray dogs than in those with an owner (31.9%) and the prevalence of Giardia spp. and Cystoisospora spp. was higher in stray dogs (P < 0.05). No effect of season on the occurrence of the different parasite genera could be observed, except for Anclylostoma spp., for which an increase in the percentage of dogs shedding eggs was observed at the beginning of Summer with a peak occurrence during April and May (Autumn). The prevalence of Anclylostoma spp., T. canis, T. vulpis, Giardia spp. and Cystoisospora spp. was higher in adult males than in adult females, but significant differences between the two groups occurred only with Giardia spp. Young animals were found to more frequently shed Nematode eggs in feces than adult animals.