Fur Animal Research

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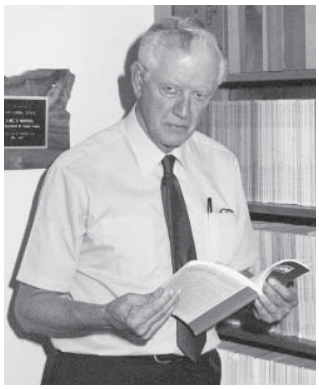

Dr. Jim Oldfield

This issue will reach you late. Part of the reason is the recent illness of Dr. John Gorham, who is a regular contributor to it, but the responsibility is mine, and I'm sorry. I am pleased to report that Dr. Gorham appears to be recovering nicely.

Sometimes I feel we're living in an aging society. This has been the case in agriculture for many years, as young people leave the hard work of farms and ranches to seek more lucrative employment in urban communities. So I was concerned when a young friend of mine, wh owned a mink ranch, said he'd decided to do something else. "Do you have anything in mind?" I asked. "Yes," he said, "I'm going to sell bottled water. I have a spring on my place from which water comes, clear and cold. There's a huge market for it, you know." "Have you thought of a name for your product?" I asked. "Yes," he said. "I'm going to call it 'Aquafur'." So I stopped worrying about this young man. Anyone with that kind of ingenuity is going to get along alright.

Fur animal research facilities are precious few, any more. The experimental fur farms at Cornell and Oregon State are long gone, and we are depending on Canadian work in Nova Scotia and facilities in Europe – largely in Scandinavian countries. We draw on them for our research reports for this newsletter and you will see some of it in this issue. As we approach the all-important breeding season I wish you success and send best wishes for the New Year.

J. E. Oldfield

CANINE DISTEMPER

This disease can occur at any time of the year, but outbreaks are most common in the summer and fall when the kit crop triples the population of susceptible animals. The virus is usually introduced by infected dogs, raccoons, or skunks, and less often by new mink introduced into the herd.

During an outbreak, there are many sub clinical infections, especially in older animals. The average death loss in unvaccinated adults is 30 to 40 percent, but may reach 90 percent in nursing kits.

Clinical signs generally begin to show nine to 14 days after exposure. The eyelids become squinty, red, watery, and swollen. The eyes develop a crust and eventually stick shut. A rash and crusting may be seen around the nose, lower jaw, and inguinal area. In younger animals, scaly swollen footpads may be prominent.

Some mink appear to recover but succumb 10 to 12 weeks later with "screaming fits."

In some outbreaks reported by the late Dr. G.R. Hartsough, there has been a tendency for the animals to show less severe signs. Kits have not shown the marked facial and footpad signs, but only the mild eye signs. Mortality rates were still potentially high, even though the external signs were less severe. There appears to be a tendency toward earlier neurotropic signs in these outbreaks.

Diagnosis usually is based on the typical nose, eye, and skin lesions and can be confirmed by lab analysis for microscopic viral inclusion bodies in sections of the urinary bladder or by a fluorescent antibody test for the virus in white blood cells, urinary bladder, and tracheal scrapings.

In the face of an outbreak, prompt vaccination is essential. If the kits are still in litters, the method of choice is by spray vaccine. If this is not a practical alternative, vaccination should be done first in the areas of the yard which are free of the disease, then work towards the infected area, vaccinating it last.

Any infected animals should be disposed of promptly and disinfection of the contaminated areas is a "must."

An advanced case of distemper. The eyes are held closed by a pussy discharge.

After vaccination, it may take five weeks or more before the case breaks out with eye and nose signs. It may take 12 weeks or more before losses from the neurologic form (screaming fits) are no longer seen.

Prevention is the best distemper cure. Effective modified-live viral vaccines are available and when administered in accordance with the manufacturer's recommendation virtually eliminate problems with distemper.

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KIT MORTALITY ON DANISH MINK FARMS FROM WEANING TO PELTING

Introduction

The death rate from weaning to pelting is 1% per week according to Hansen (1984). During the nursing period there might be a higher rate of death among the kits. Both in Denmark and in the other Nordic countries there have been registrations of causes of death before but this was done several years ago (Henriksen, 1983 and Wahlström, 1986). In 2006, The National Centre / Fur Animals performed a survey together with the Danish Fur Breeders Research Centre and Holstebro Veterinary Hospital to register the causes of death on 10 mink farms.

The original objective of the survey was to study urinary tract diseases and to find the number of kits who died from urinary tract diseases and to study farm management related factors that might cause urinary tract diseases. There were no problems with urinary tract diseases in 2006 among the farms in the study, but there was some good information on causes of death among mink kits.

Materials and Methods

Ten farms were selected as hosts of the survey. All farms had their feed delivered from the same feed kitchen (Holstebro Minkfodercentral). The farms had from 900 to 9200 females.

On the ten farms, all dead animals from the period from 1 of June to 31 of October were sampled and kept in a freezer until autopsy. A veterinarian from Holstebro Veterinary Hospital performed the autopsy every month (in the beginning every fortnight). Causes of death, color-type and sex and date of death was noted. A total of 2787 animals were autopsied in the survey.

All farms had a visit of an advisor from the National centre / Fur animals once a month to register factors related to management and farm conditions.

Results and Discussion

In figure 1 the mortality on these ten farms are shown. The highest amount of dead kits is in June and first half of July. This might be caused by an outbreak of sticky kits in some farms in May and June followed by weak kits that died in June and July (especially farm no. 3 and no. 5). Farm number 8 appears to have a low death rate in the first half of June. The farmer from this farm was excluding animals with clear signs of diarrhea. July was also a very warm month in 2006 and some farms lost kits due to the heat. This was especially true of black male kits. In August and September there was a very low death rate on the farms. The death rate was increasing again in October. The causes of this increased mortality in this month are described later in this paper.

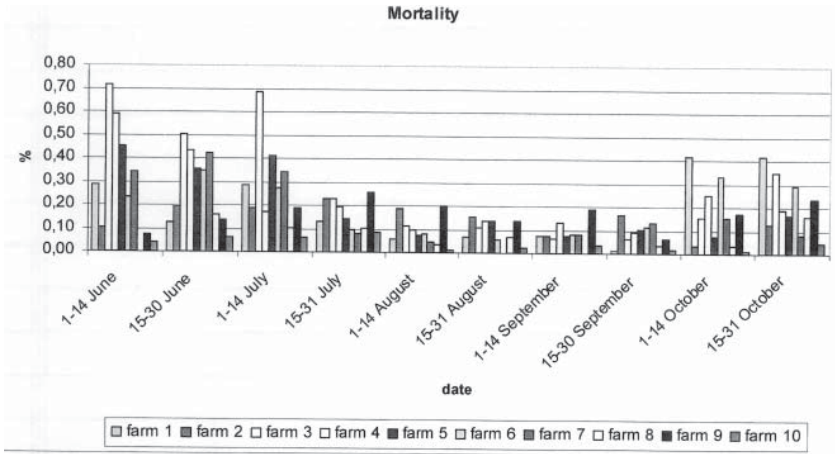

Figure 1. Mortality on the 10 farms from June to October in percent of the population.

The incidence of urinary tract diseases was generally low on the ten farms. As it appears from figure 2, the incidence of urinary tract diseases was very high in the late half of June and in July. Farm number 6

dustings from the other farms by having a high number of kits that died from urinary tract diseases in the period of 15 of June to 14 of July. On this farm, 2.7 per 1,000 died of urinary tract diseases. Farm number 9 did not have as many incidences as farm number 6, but had incidences to the middle of September. Farm number 7 had a lot of incidences.

Farm number 7 had a relatively high number of kits that died from urinary tract diseases in the beginning of the period, and almost none in August. In September and October there is an increase in the number of incidences on farm number 7.

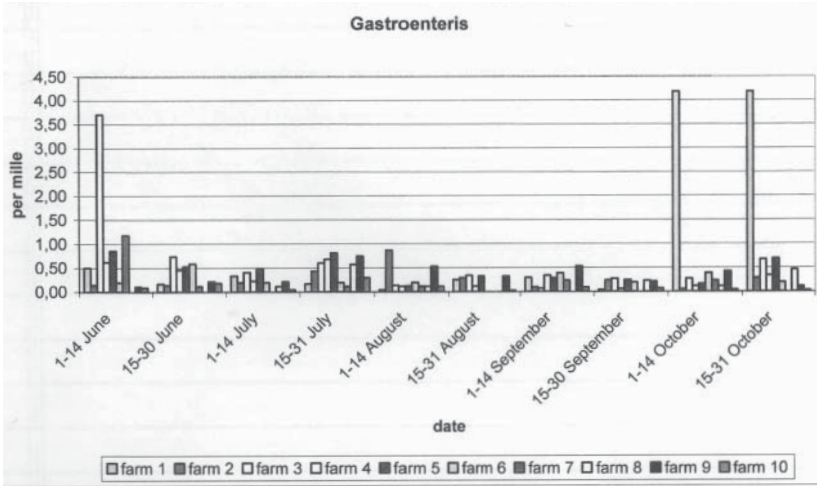

Figure 3. Incidences of gastroenteritis in per 1,000 of the population.

The low rate of urinary tract diseases might be caused by a high inclusion of acid-preserved raw materials in the feed. This decreased the urine pH and might have prevented the formation of urine stones (Clausen et al., 2008).

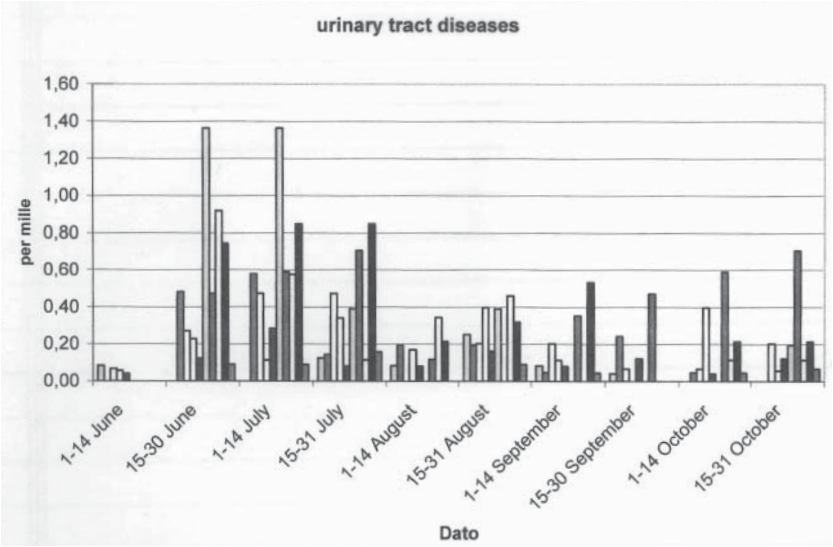

Figure 2. Incidences of urinary tract diseases on the ten farms from June to October in per 1,000 of the population.

Figure 3 shows the frequencies of kits that died from gastroenteritis. In the first half of June was farm number 3 differs from the others by having up to 3.6 per 1,000 of the kits that died from gastroenteritis. This farm had problems with diarrhea among the kits in this period. In October, farm number 1 differs from the other farms with almost 8 per 1,000 of the kits that died due to gastroenteritis. This farm had severe problems with diarrhea and lack of appetite in this period. This is also the explanation to the high frequency of mortality in October seen in figure 1. According to Clausen (2006) gastroenteritis is not a normal cause of death in the late growing season.

Figure 4 shows the part of the animals that had a fatty liver at the time of autopsy. The fatty liver is not the primary cause of death in all cases, but can be a secondary disorder to gastroenteritis and sudden lack of appetite. In June and July there was almost none of the dead animals that had a fatty liver, whereas there were up to 8 per 1,000 of the animals on one farm in October that had a fatty liver. This agrees with observations from the Danish Fur Breeders Research Centre. These observations also showed a high incidence of fatty liver at the end of the growing season (Clausen, 2006).

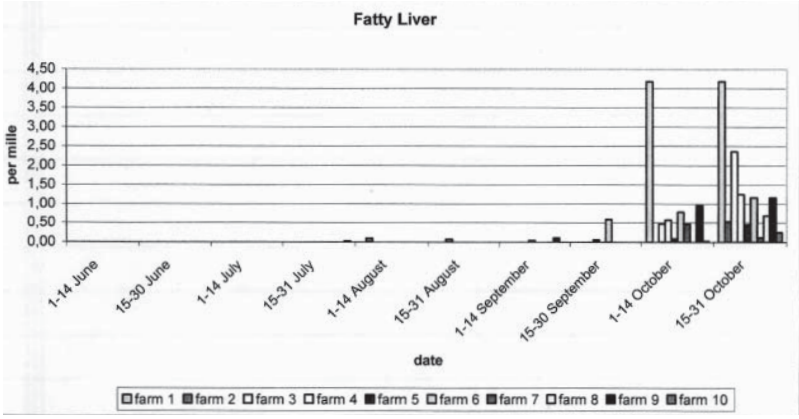

Figure 4. Dead animals with fatty liver in per 1,000 of the population.

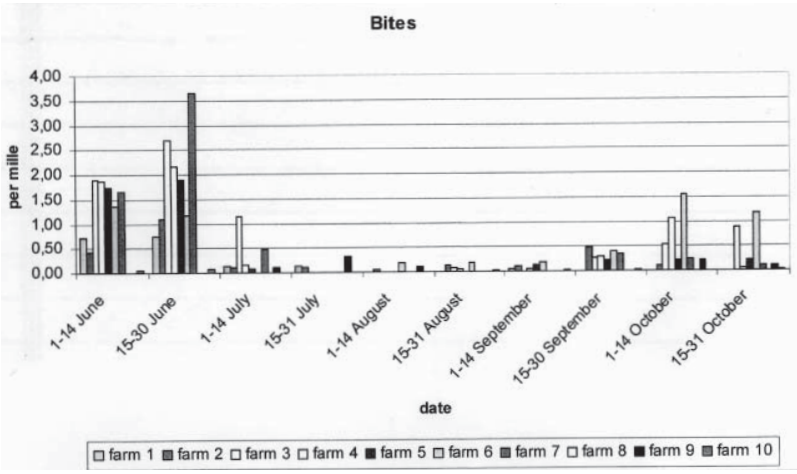

Figure 5. Rate of kits that died from bites from June to October in per 1,000 of the population.

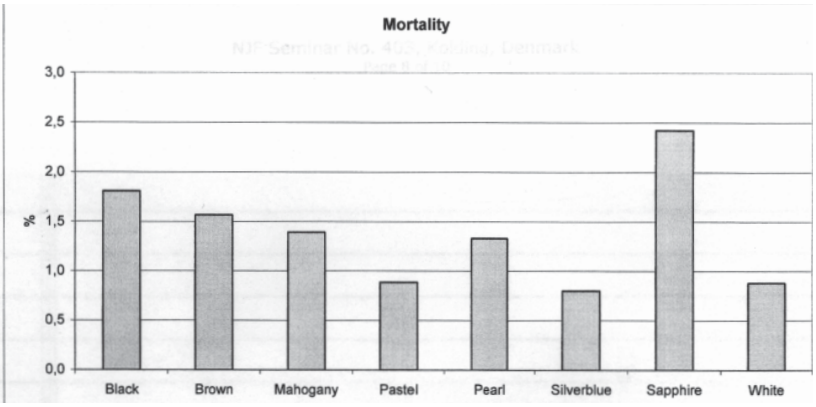

Figure 6. Mortality rate from June to October according to color types in percent of kits in the color type

There was a large variation among the farms in number of animals that had a fatty liver. Farm number 1 experienced severe problems with diarrhea and lack of appetite, as mentioned before. This has led to the formation of the fatty liver.

Figure 5 shows the part of the animals that died because of bites. There was a large variation among the farms where some farms had almost no animals that died of bits and others having almost 5 per 1,000 of the kits dying of bites in June. In the period from 15 to 30 of June, farm number 7 differs from the other farms by having 3, 5 per 1,000 of the kits that died because of bites. On this farm and on farm number 4, which also had a high rate of kits dying from bites, the kits were not separated early enough.

The rate of kits dying from bites was highest in June and decreased in July, August and September and then it increased again in the late part of September and October. The increase in September and October was identical to the furring period and the time where the animals get sexually mature. This might in some cases lead to an increased aggression.

Death rates related to color type

Figure 6 shows the mortality from June to October related to different color types. The highest death rate is noted within the Sapphire color type with almost 2.5% of the population. Black has a death rate of 1.8% of the population. It was expected that the Brown color type had the lowest death rate, but it appeared to be the Silverblue and Pastel.

The Sapphire color type had the highest rate of urinary tract diseases followed by White, Brown and Black. In the Sapphire color type there was 0.25% of the kits that died from urinary tract diseases, whereas in White it was 0, 16% and in Black and Brown, it was

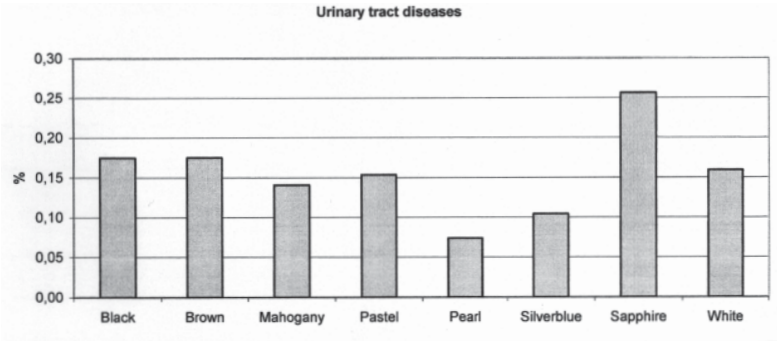

Figure 7. Rate of kits that died from urinary tract diseases according to color types in percent of kits in the color type.

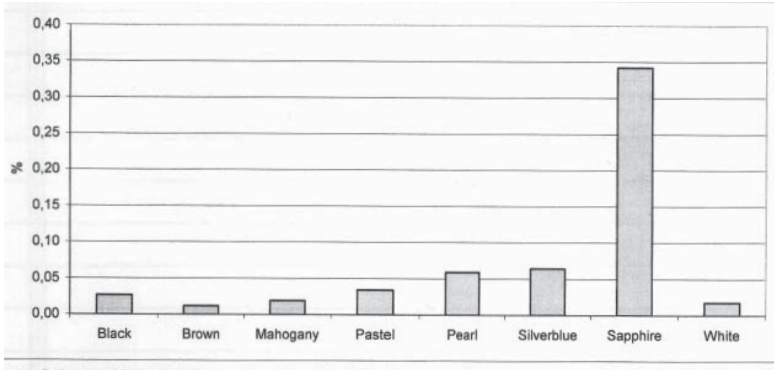

Figure 8. Rate of kits died from pleural cavity infection according to color types in percent of kits in the color type.

0, 17%. It was expected that the Sapphire color type had the highest rate of urinary tract diseases, because the Sapphire and other "blue" color types have a weak resistance to infections due to a gene defect (Hammer et al., 2005).

Figure 8 shows the rates of animals that died from pleural cavity infection according to color types. Also, here Sapphire color type was over represented. The Sapphire color type is known to have a weak immune system and a low resistance to infections. This is due to a gene defect (Hammer et al., 2005). In a study made by Weiss et al. (2004) similar results were found. In this study the blue colored types were also over represented among the animals that died from pleural cavity infection.

Conclusion

The original objective of the study was to look into the rates of urinary tract diseases. This was not very high on the ten farms in 2006. The reason might be change in the feed composition from 2005 to 2006. More acid or acid preserved raw materials were included in 2006 and this might have prevented the urinary tract diseases. The frequency of urinary tract diseases was highest in June and July. The rate of urinary tract diseases varied from farm to farm and from color type to color type. The blue color types (sapphire) had the highest rate of urinary tract diseases. This was expected because the blue mink has low resistance to infections because of a gene defect. There were no obvious management related factors in the farm that had a high rate of urinary tract diseases.

Animals that died from bites were highest on the farms that were late in separating the litters into separate cages. This made more aggression among the animals and led to more bites. This was an example on a management related dead cause, which can be decreased by good management.

The study also showed that the gastroenteritis and fatty livers appeared late in the growing season. This was also found in other studies. The gastroenteritis and fatty livers were related to a few farms, but on these farms there were high rates of dead animals due to the above mentioned reasons.

Even though the study did not find the cause of urinary tract diseases it has given knowledge of causes of death among animals on the Danish mink farms. It is, however, not a thorough study. If the same study was made another year or on another feed kitchen, we might have another answer.

There is, however, a need of a more thorough study of the causes of death on the farms. If the cause of death is not known, it is very difficult to treat the animals the right way.

References

Clausen, T. (2006) Hvad dør mink af gennem et produktionsår. Store mink – Store udfordringer DJF Intern Rapport Husdyrbrug nr. 2 68-71.

Clausen, T.; Weiss, V., Hansen, M.U., Lassén, M. and Mundbjerg, B. (2008): Urinundersøgelser på farme 2006. Faglig Årsberetning 2008, xx-xx. Pelsdyrerhvervets Forsøgs- og Forskningscenter, Holstebro, Danmark.

Hammer, A.S., Anderson, T.H., Eriksen, T., Kortegaard, H.E., Dietz, H.H. and Chriél, M. (2005) Radiographic evaluation of destructive periodontal disease in blue mink in relation to age and blood morphology. Can. J. Vet. Res. April; 69(2):128-134.

Hansen, M. (1984) Sygdomme og hygiejne IN: Jørgensen, G. (Ed.) Minkproduktion. Dansk Pelsdyravlerforening, I kommission hos Det Kgl. Danske Landhusholdningsselskab.

Henriksen, P. (1983) Hvad dør mink af? Dansk Pelsdyravl nr. 9 1983 s. 471-475.

Wahlström, K. (1986) Orsaker till dödelighet hos mink, Patalog-anatomisk undersökning av dödsorsaker I 16 utvalda minkfarmer med Iåg frekvens af plasmacytos, SVA, Patolog-anatomiska avdelingen.

Weiss, V., Clausen T.N., Hansen, M.U. and Henriksen, A.M. (2004) Undersøgelse af urinens pH og urinvejslidelser hos minkhvalpe I juni og juli måned. Faglig Årsberetning 2004, 215-222. Pelsdyrerhvervets Forsøgs- og Forskningcenter. Holstebro, Danmark.

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