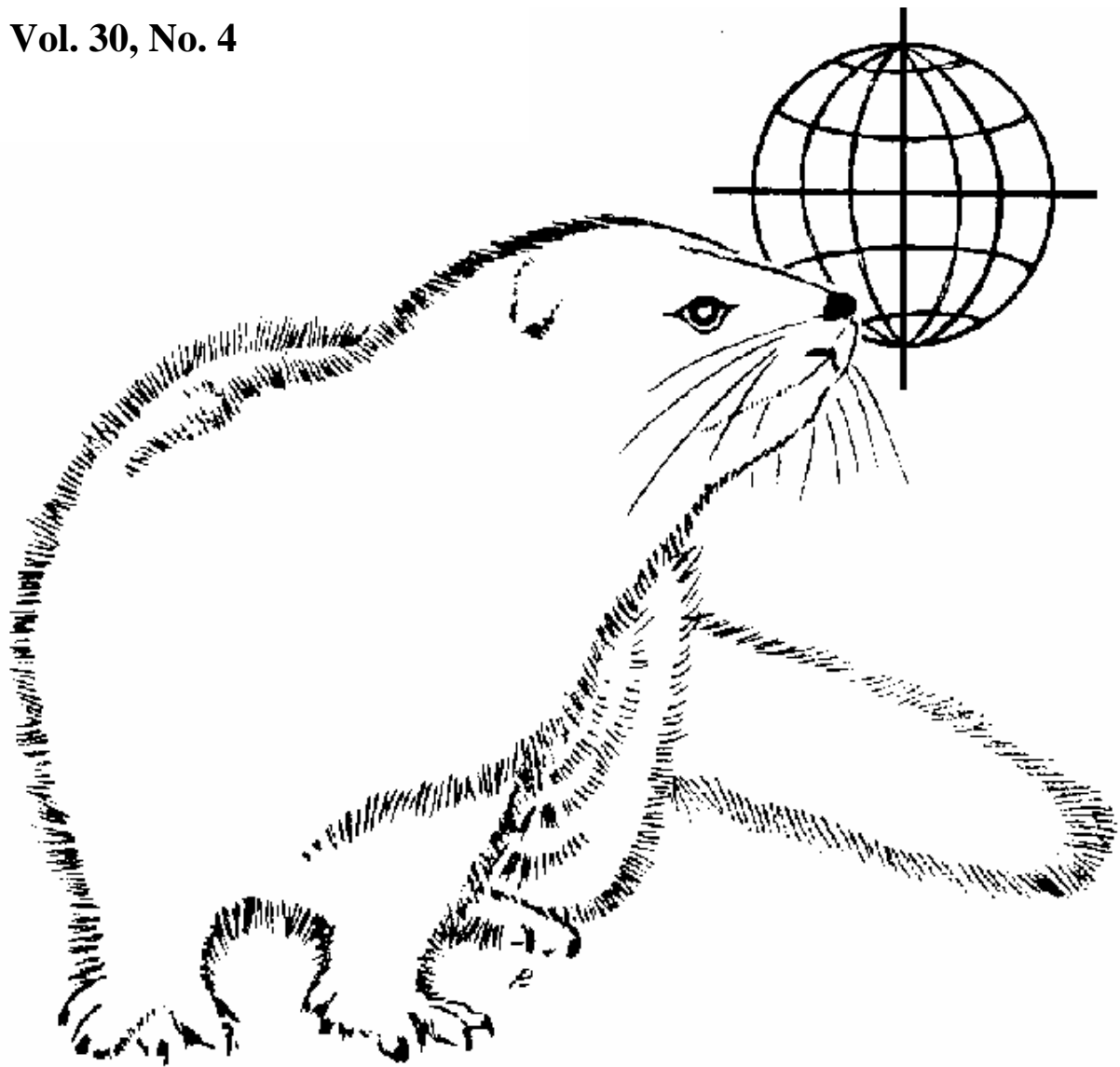


SCIENTIFUR

SCIENTIFIC INFORMATION IN FUR ANIMAL PRODUCTION

Vol. 30, No. 4



INTERNATIONAL FUR ANIMAL SCIENTIFIC ASSOCIATION

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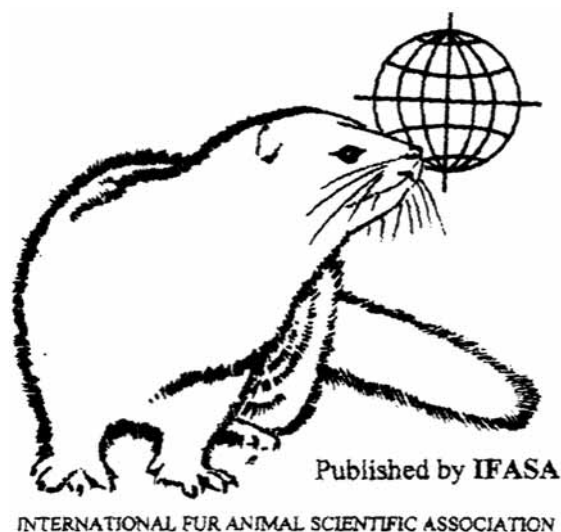
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Notes from the Group of Editors

This issue of *Scientifur*, which is the fourth issue of Volume 30, contains a vast number of abstracts of fur animal articles provided by J.R. Gorham.

Included are also the abstracts of a well-attended meeting on 'Large mink – large challenges. Production of high-yielding mink without negative

effects' held at the Danish Institute of Agricultural Sciences on 19 September 2006.

For future issues of *Scientifur*, we invite our readers to submit proceedings, articles for reviewing, short communications, abstracts and letters on fur animal production.

On behalf of the
Group of Editors

Birthe Damgaard

Genetic diseases of mink

A.C. Lantis, J.R. Gorham

With thousands of mink raised on an acre or two of land, coupled with excellent breeding records of knowledgeable mink farmers, the discovery of many genetic diseases of mink was not difficult.

There are diseases in which the coat color serves as a useful marker, i.e. Aleutian mink and the Chediak-Higashi Syndrome and deafness in Hedlund white mink. Then there are mink that are observed to be more susceptible to virus diseases. The susceptibility of the pastel color phase mutation to distemper has been recognized worldwide and the reported susceptibility of black mink to coronavirus infections has also been reported. No doubt the susceptibility and/or resistance to disease agents involve several genes.

Of course, in an overwhelming intoxication such as botulism or infectious-like anthrax, the genotype of the mink probably plays a minor role in whether the affected mink lives or succumbs.

In the review the following diseases are described:

- Tyrosinemia
- Chediak-Hagashi Syndrome
- Genetic resistance of Aleutian mink (C-HS.) to certain viral and bacterial diseases
- The susceptibility of pastel mink to distemper
- Susceptibility of dark mink to coronavirus
- Muscular dystrophy
- Thin skin disease
- Deaf mink
- Dwarfism
- Bobbed
- Sterility of homo mink
- Hydrocephalus
- Screw neck
- Anomalies that affect the fur

Blue Book of Fur Farming, 2004: 10-19, 10 figs, 2 tables, 8 refs.

Susceptibility of dark mink to coronavirus

A.C. Lantis, J.R. Gorham

There are at least two viruses that have been reported to cause three-day disease (epizootic catarrhal enteritis). A coronavirus has been reported as a cause and a calicivirus has also been identified by Dr. Bruce Hunter of the Ontario Veterinary College.

Coronavirus disease generally occurs in mink in early fall during molting and occasionally up to the time of pelting in November. Outbreaks may also take place during the spring mating and whelping seasons. The disease frequently occurs during periods of stress and can affect the quality of fur.

Fur Animal Research, 2003: 11, 28-29, 2 figs.

Canine distemper

J.R. Gorham

The clinical description of dog distemper is well-written and an accurate depiction of the disease. It is a good review of the symptoms of distemper for mink farmers.

Fur Animal Research, 2003: 11, 18.

Transmissible mink encephalopathy (TME)

T.K Bailey, J.R. Gorham

Transmissible mink encephalopathy (TME) has been recognized for almost 50 years yet this noncontagious neurological disease is still considered rare. Originally described in Wisconsin, TME affects only adult mink. TME was responsible for 5 outbreaks involving 11 farms in the US since 1947 and has also been reported in Canada, Finland, Germany, and Russia. The most recent case of TME

in the US was in 1985. The exact source of the disease is unknown but appears to stem from an infectious agent in mink feed.

Fur Rancher, 2003: 3, 4-5, 3 figs.

A food-borne outbreak of Aleutian disease

J. Gorham

We, as well as other veterinarians, have long felt that Aleutian disease (AD) can be transmitted by mouth. Indeed, we were able to infect mink by both the oral and nasal routes using AD infected spleen and feces. (1964)

During the fall of 2002, a large AD outbreak occurred in Denmark in which there is no doubt that AD was food-borne.

It should be pointed out that the outbreak is based on CEP reactors and not AD deaths. These farms were considered to be AD free farms prior to the outbreak.

Fur Rancher, 2003: 3, 3.

Bacterial diseases of mink

T.W. Affolter, J.R. Gorham

Bacteria are present virtually everywhere in the environment. They are ubiquitous in the soil, water, on other living organisms, and also on dust and droplets in the air. They can even be found in such inhospitable places as boiling hot springs at the bottom of the ocean and on the surfaces of rocks in the middle of the desert. Researchers have estimated that as many as 4000 species of bacteria are commonly present in one gram of soil.

In the northern latitudes, including most of Europe, Russia, Canada, and the United States, there are a relatively small number of bacteria species that are of serious concern for mink breeders. However, pathogenic and opportunistic bacteria that exist in mink raising areas can cause serious problems, including infectious pneumonia due to

Pseudomonas; abortion caused by *Campylobacter* or *Salmonella*; botulism; intestinal diseases due to *Campylobacter* or *Clostridium peفرingens*; and various conditions caused by *Staphylococci* and *Streptococci*. Many of these bacteria have the potential to cause devastating outbreaks and thus control of these diseases is of critical importance to the mink breeder.

Blue Book of Fur Farming, 2001: 6-36, 7 figs, 1 table, 57 refs.

Perspectives on mink distemper

J.R. Gorham

When distemper is mentioned, mink ranchers have cause for alarm as it is a serious worldwide infectious disease. It has often been said that before any diagnosis can be made, distemper must be first eliminated as a cause.

Future research

Since the first report of mink distemper in the early thirties, strains of high and low virulence along with other strains that were seemingly more transmissible or more likely to cause "screaming fits" have been recognized. The study of these strains will receive a great deal of attention.

Also, the high susceptibility of the pastel color phase, along with other host factors, is of interest to researchers.

Studies are underway in Denmark on the "tracking" of distemper through the same and different animal populations. For an example, the transmission of distemper from seals to mink has been reported.

While it is hazardous to speculate, I believe that a quick on-the-farm test for distemper will be available in the next decade. The success of this research is dependent upon molecular biology – the study of the genes of the mink and the distemper virus.

Blue Book of Fur Farming, 2000: 10-14, 8 figs.

Pathogenesis of two strains of lion (*Panthera leo*) Morbillivirus in ferrets (*Mustela putorius furo*)

J.F. Evermann, C.W. Leathers, J.R. Gorham, A.J. McKeirnan, M.J.G. Appel

Canine distemper virus (CDV) was previously considered to have a host range restricted to the canid family. In 1994, the virus was associated with sporadic outbreaks of distemper in captive felids. However, after severe mortality occurred in the Serengeti lions (*Panthera leo*), attention became focused on the pathogenesis of the virus and a concerted effort was made to identify the virus as CDV or a closely related feline morbillivirus. The present study was designed to explore the susceptibility of ferrets to challenge with two morbilliviruses isolated from lions and the protective effects of a modified-live mink distemper vaccine. Because mortality in ferrets infected with pathogenic CDV approaches 100%, the ferret was selected as a test animal. Two strains of lion morbillivirus were used as a challenge, A92-27/20 (California lion isolate) and A94-11/13 (Serengeti lion isolate). The two strains of lion morbillivirus were antigenically related to CDV (Rockborn strain), and ferrets were susceptible to both of the viruses when inoculated intraperitoneally. The inoculated ferrets were anorectic at 5-6 days postinoculation (PI), exhibited oculonasal discharge at 9-12 days PI, and became moribund at 12-22 days PI. Severe bilateral conjunctivitis was the typical clinical sign. Inclusion bodies characteristic of morbillivirus (eosinophilic, intranuclear, and intracytoplasmic) were distributed in many epithelial cells, including those of the skin, conjunctiva, gallbladder, liver, pancreas, stomach, trachea, lung, urinary bladder, and kidney. Virus was reisolated from selected lung tissues collected at necropsy and identified by CDV-specific immunofluorescence. Ferrets vaccinated with the mink distemper vaccine (Onderstepoort strain) were protected from challenge with the two lion strains, adding further support to the premise that the viruses are closely related to CDV.

Veterinary Pathology, 2001: 38, 311-316, 2 figs, 45 refs.

Distribution of tyrosine aminotransferase activity in mink (*Mustela vison*)

D.J. Prieur, J.R. Gorham, R.K. Wood

The distribution of the enzyme tyrosine aminotransferase in tissues of mink, *Mustela vison*, was investigated. High levels of enzymatic activity were detected only in liver, documenting the hepatic-specific nature of this enzyme in this species. Further studies disclosed that tyrosine aminotransferase is not absent from non-hepatic tissues because of the lack of the use of a stabilized buffer, sensitivity to temperature, or due to the presence of an inhibitor. Collectively, these results suggest that the enzymatic assay of tyrosine aminotransferase will be unlikely to be an efficacious approach for identifying mink that are heterozygous for the autosomal recessive deficiency of this enzyme that is common in dark mink.

Comparative Biochemistry and Physiology, 2001: Part B, 130, 251-256, 4 tables, 22 refs.

Interspecies virus transmission

J.F. Evermann, A.J. McKeirnan, J.R. Gorham

Interspecies virus transmission between dogs and cats has been known to occur with certain viruses (e.g. canine parvovirus) and suspected to occur with others (e.g. feline calicivirus) for several years. The mechanisms whereby viruses cross over into a secondary host involve both environmental and host-animal factors that allow viruses to persist. As viruses acquire multiple-host ranges, their ability to sustain infection in the animal population increases. Increased recognition of unusual clinical signs and enhanced sensitivity of laboratory detection assays have refined the ability to detect emerging infections.

Compendium, 2002: 24, 390-395, 1 fig, 1 table, 37 refs.

Biotechnology in the diagnosis of infectious diseases and vaccine development

H. Li, J. Gorham, D. Knowles

Molecular biological methods have become increasingly applicable to the diagnosis of infectious diseases and vaccine development. To become widely used the methods need to be easy, safe, sensitive, reproducible and eventually automated to facilitate the evaluation of large numbers of samples.

The purpose of this chapter is to provide general background information for the nonspecialist. Two issues of the OIE Scientific and Technical Review are concerned with biotechnology and the diagnosis of animal diseases, and may be consulted for a more detailed review. The following is an outline of the topics briefly reviewed in this chapter.

- Detection of nucleic acids
- Detection of protein
- Antibody detection
- Vaccines

Chapter I.1.8 in Manual of Diagnostic tests and vaccines for terrestrial animals (mammals, birds, and bees), 2004: 69-89, 158 refs.

**Meeting at the Danish Institute of Agricultural Sciences, Research Centre Foulum,
on 19 September 2006 on the subject**

**'Large mink – large challenges
Production of high-yielding mink without negative effects'**

Internal Report, Husbandry, no. 2, September 2006 (in Danish)

The focus of the meeting was on presenting new ideas, research results and projects of relevance in relation to future mink production and breeding. The presentations hosted were based on studies carried out at the Danish Institute of Agricultural Studies, the Danish Fur Breeders' Research Center, the Danish Institute for Food and Veterinary Research, the Royal Veterinary and Agricultural University, Copenhagen, and at the National Centre, Fur Animals, of the Danish Agricultural Advisory Service. The presentations were divided into the following categories: 1) the survival and health of mink kits, 2) feed efficiency, and 3) future initiatives. Well over 200 farmers, advisers, researchers and others participated in the meeting. Below are the abstracts of the presentations hosted:

Small mink – large challenges. New information on early mink kit mortality

J. Malmkvist, A. Castella, B. Houbak

During the whelping period of 2006 we investigated (a) associations between behaviour and body condition during the period of pregnancy, the course of parturition (based upon recordings of deliveries) and the early kit mortality, (b) heat loss in kits alone versus kits huddling, and (c) whether heat incubators rescue/benefit cold small kits.

Based on part (a), a model for casual associations involved in early kit mortality will be made using a graphical chain model. The final results are expected during 2007. Huddling significantly affects the temperature drop in 8-9 day-old kits during cold exposure, and the heat loss was declining linearly with increasing number of kits huddling (tested from 1 to 9, $P < 0.001$, $R = 0.99$). The small kits lose more heat and they are less active during cold exposure. Neither cooling (ca. 8 °C for 40 min) nor the use of heat incubator day 1 affected the growth of the smallest kits in the litter ($F_{2,43} = 1.8$, $P = 0.182$). Thus based on the preliminary results from

this experiment, we found no effect of using heat incubators to chilled kits, compared to just putting them back into their home nest.

Meeting at DIAS, Research Centre Foulum, 19 September 2006 on the subject 'Large mink – large challenges. Production of high-yielding mink without negative effects'. Internal Report, Husbandry, no. 2, September 2006 (in Danish). 5 pp, 1 fig, 11 refs. Authors' abstract.

Development of mink mammary glands in relation to feeding and selection / in relation to equalising litter size

S.H. Møller

The development of mink mammary glands in terms of individual gland activity, size and weight was studied in relation to feeding and selection and in relation to activation of glands upon adding foster kits. In the lactation period 2005 and 2006 ten and three females, respectively, with litter size 8 were examined from each of 3 lines: Farm feeding (FF), *Ad libitum* feeding (AL), and Restricted Feeding (RF). Line FF was an unselected control and AL and RF were selected for weight in November. After shaving the belly at 3 weeks the area of active glands were measured at 3, 6, and 8 weeks in 2006 and at 3 and 7 weeks in 2006. Measures were compared to size and weight of dissected glands at 8 and 7 weeks respectively. Lactation was almost stopped in most litters at 8 weeks and gland area as well as gland weight was very low. At 7 weeks gland area correlated well to size and weight of dissected glands, and gland size tended to be highest in the RF line and lowest in the FF line.

Gland activity was measured 4 times in 7 females between 3 and 21 days post partum. Ten previously inactive glands were observed active at day 3, 4, 5,

6, 7, 8, 9, and 12 post partum. After adding 1 to 4 foster kits to 18 litters 3 to 7 days post partum, 6 inactive glands became active in 5 females. The frequency of glands activated were higher in females with more kits + foster kits than active glands, while inactivation of glands only occurred in females with more active glands than kits + foster kits.

Meeting at DIAS, Research Centre Foulum, 19 September 2006 on the subject 'Large mink – large challenges. Production of high-yielding mink without negative effects'. Internal Report, Husbandry, no. 2, September 2006 (in Danish). 5 pp, 1 fig, 3 tables, 4 refs. Author's abstract.

Microbiological and pathological studies of early mink kit mortality in practice

A.S. Hammer, V. Weiss, M.U. Hansen, M. Michel, T. Clausen

In 2005 and 2006 mink females and kits were collected with a view to studying the causes of early kit mortality. The animals were subjected to pathological and microbiological analyses with regard to demonstrating possible causes of death and evaluating the applicability of various pathological, histopathological, and microbiological tools for diagnosing early mink kit mortality.

The results concurrently indicate that early kit mortality is often related to birth complications or bacterial infection of the uterus, and/or the mammary glands of the female. Therefore, it is extremely important that kits as well as females are included when studying the causes of early kit mortality. Furthermore, the autopsy findings indicate that many of the birth complications related to early kit mortality may be ascribed to overweight dams. The bacteriological findings in the kits as well as in the females indicate that bacteria are a major cause of early kit mortality. Thus, optimizing the feeding of the female as well as the hygiene during the neonatal period can be important elements in relation to minimizing early kit mortality.

Meeting at DIAS, Research Centre Foulum, 19 September 2006 on the subject 'Large mink – large

challenges. Production of high-yielding mink without negative effects'. Internal Report, Husbandry, no. 2, September 2006 (in Danish). 3 pp, 2 tables, 9 refs.

Selection on *ad libitum* and restrictive feeding

V.H. Nielsen, S.H. Møller, B.K. Hansen, P. Berg

The effect of selection for high November weight on *ad libitum* (AL) and restricted feeding (RF) and of selection for high feed efficiency on *ad libitum* feeding (FE) is studied in mink. The estimated responses in the AL-, RF-, and FE-line are 362 g, 451 g, and 97 g. Thus, November weight is increased in all cases.

Meeting at DIAS, Research Centre Foulum, 19 September 2006 on the subject 'Large mink – large challenges. Production of high-yielding mink without negative effects'. Internal Report, Husbandry, no. 2, September 2006 (in Danish). 5 pp, 3 figs, 1 table, 5 refs. Authors' abstract.

Feed efficiency after selection for two generations on *ad libitum* and moderately restrictive feeding

S.H. Møller, V.H. Nielsen, B.K. Hansen

Most farmed mink in Denmark are fed close to the average *ad libitum* intake during the growth period, based on feed leftovers at farm, shed, or row level. Variation in voluntary feed intake between male + female pairs is ignored apart from the distribution of feed leftovers to cages without feed left over from the day before. Individual feeding systems have made true *ad libitum* feeding of mink possible. Voluntary feed intake, weight gain, and feed efficiency was studied in male + female pairs of brown mink kits during 15 weeks from 12 weeks of age in July to 26 weeks of age in November in 2003, 2004, and 2005. A large variation in voluntary feed intake, weight gain, and feed efficiency was found between male + female pairs of kits. It is concluded that individual *ad libitum* feeding increases the feed consumption, weight gain, and feed efficiency compared to the usual farm feeding practice. Selection for high body weight under both individual *ad libitum* feeding and moderate

restricted feeding increases the feed efficiency by the same magnitude, mainly by increasing the weight gain or reducing the feed consumption, respectively. The feed efficiency was 26 % better in the *ad libitum* and restricted feeding lines compared to the farm fed line in the third growth season. Selection for feed efficiency under individual *ad libitum* feeding increased the feed efficiency 19 % compared to the Farm Fed control line by an increasing weight gain combined with a reduced feed consumption.

Meeting at DIAS, Research Centre Foulum, 19 September 2006 on the subject 'Large mink – large challenges. Production of high-yielding mink without negative effects'. Internal Report, Husbandry, no. 2, September 2006 (in Danish). 9 pp, 3 figs, 4 tables, 7 refs. Authors' abstract.

How does feeding affect the behaviour of mink?

S.W. Hansen

The paper presents the results of several studies focusing on the effect of feeding on the welfare of mink. When fed normal farm feed during growth, the mink is active at sunrise and sunset as well as when being disturbed e.g. by the feeding procedure. In winter, however, the mink anticipates the time of feeding and the animal increases its activity immediately up to the expected time of feeding. This 'timing' is conditioned by daily feeding routines and restrictive feeding. The level of activity around feeding time is higher in mink fed restricted diets than in mink fed *ad libitum*. However, the level of activity in mink fed restricted diets is reduced around sunrise. This means that the mean level of activity during a 24-hour period does not differ between mink fed *ad libitum* and mink fed restrictively, but restrictively fed mink perform significantly more stereotypic behaviour than mink fed *ad libitum*. Stereotypies are assumed to indicate reduced welfare in mink and therefore such behaviours should be included in the welfare assessment of mink farms. Stereotypies are related to the periods of activity in mink. It is possible to quantify the level of stereotypy at a farm by postponing the normal time of feeding for three hours and then record the occurrence of stereotypy during this period. Apart from feeding, genetic and

environmental factors have an influence on the level of stereotypy at a given farm.

Meeting at DIAS, Research Centre Foulum, 19 September 2006 on the subject 'Large mink – large challenges. Production of high-yielding mink without negative effects'. Internal Report, Husbandry, no. 2, September 2006 (in Danish). 7 pp, 4 figs, 2 tables, 7 refs. Author's abstract.

A model for feed conversion in individual mink

P. Berg, B.K. Hansen

Feed is the largest single cost in mink production. However, efficiency of utilization of feed cannot be easily recorded in mink production, as animals are normally kept in pairs.

The objective of the paper is to present a model for feed conversion rate when feed is measured for pairs of animals and weights are measured individually. This model is used to estimate variance components for feed conversion rate from a selection experiment. Variance components indicate a large potential for genetic improvement of feed conversion rate. Before implementation in breeding schemes this model should be validated for its predictive ability.

Meeting at DIAS, Research Centre Foulum, 19 September 2006 on the subject 'Large mink – large challenges. Production of high-yielding mink without negative effects'. Internal Report, Husbandry, no. 2, September 2006 (in Danish). 5 pp, 1 fig, 2 tables, 5 refs. Authors' abstract.

Breeding values for feed conversion rates

B.K. Hansen, P. Berg

It is possible to estimate a breeding value for feed conversion rate for mink using feed allowance recordings for pairs of animals. Four models to predict breeding values for individual feed conversion rate are tested. Based on the test results in this paper the best model to predict the breeding value is to weight the cage feed conversion rate with the relative weight gain of each animal.

The animals are from the selection project 'Large Mink – large challenges- selection for large animals without negative consequences'. The material includes 4278 animals of the brown colour type from which in these analyses 1798 pairs are used from the period 2003 to 2005.

Meeting at DIAS, Research Centre Foulum, 19 September 2006 on the subject 'Large mink – large challenges. Production of high-yielding mink without negative effects'. Internal Report, Husbandry, no. 2, September 2006 (in Danish). 5 pp, 1 table, 8 refs. Authors' abstract.

Slimming in practice

M. Sønderup

The purpose of slimming mink is to make the mating process easier as well as to ensure the birth of as many viable kits as possible. The possibilities of influencing the mating period and the reproduction results are considerable in that the heritability of fertility in mink is only approximately 10 percent. Thus, slimming from pelting and until the whelping period begins may result in large differences from one year to another.

It is described how, from 2004 and until today, new knowledge has affected the recommendations regarding slimming from pelting and until the beginning of the whelping period with the purpose of achieving good reproduction results. Finally, suggestions for recommendations regarding the breeding season 2007 are made.

Meeting at DIAS, Research Centre Foulum, 19 September 2006 on the subject 'Large mink – large challenges. Production of high-yielding mink without negative effects'. Internal Report, Husbandry, no. 2, September 2006 (in Danish). 5 pp, 1 table, 8 refs.

A map of the mink chromosomes

K. Christensen, R. Anistoroaei

A short description is given of the techniques used for the mapping work. By typing of around 170

gene markers (mikrosatellites) in 5 families with 92 offspring and application of a hybrid cell panel, there has been successfully mapped 90 markers to 12 of the 15 chromosome pairs in the mink. On chromosome one for instance is mapped the largest linkage group, which contains 14 markers. Moreover the Silver blue gene has successfully been mapped to chromosome three based on segregation of the gene in one of the five families. By homology studies the gene has been identified corresponding to the segregation of silver gene in the dog, which for instance segregates in the Puddle, the gene codes for melanophilin. With respect to identification of the function of other colour genes is collected family material which segregates in Cross, Palomino, and Stardust. Planes are ready for families with segregation in Hedlund white, Regal white, Aleutian and Pastel for the spring 2007. And work is done to identify families which segregate in Jet black and in the Red mink. In the year 2007 there are plans to fill the last gaps in the chromosome map for the mink and also for a physical anchoring so the map is turned right on the chromosomes.

Meeting at DIAS, Research Centre Foulum, 19 September 2006 on the subject 'Large mink – large challenges. Production of high-yielding mink without negative effects'. Internal Report, Husbandry, no. 2, September 2006 (in Danish). 7 pp, 7 figs, 15 refs. Authors' abstract.

Research into the disease complex 'Greasy kits'

A.S. Hammer, G. Czifra, C. Baule, K. Ullman

The purpose of the most recent year's research into 'greasy kits' has been to develop methods for diagnosing relevant viral diseases that are believed to be possible causes of 'greasy kits', and to study the course of disease while at the same time monitoring the secretion of virus on Danish 'problem' farms during the nursing period with a view to demonstrating the causes.

The studies have demonstrated that astrovirus seems to be a contributory factor in the development of 'greasy kits' on about half of the 'problem' farms. Detection of calicivirus in 'greasy kits' that are astrovirus negative indicates that calicivirus infection may be another important cause. Therefore,

calicivirus will be included in future studies of the possible causes of outbreaks of 'greasy mink kits'.

Meeting at DIAS, Research Centre Foulum, 19 September 2006 on the subject 'Large mink – large challenges. Production of high-yielding mink without negative effects'. Internal Report, Husbandry, no. 2, September 2006 (in Danish). 7 pp, 7 figs, 15 refs.

Autopsy results from a mink farm throughout four years

T. Clausen

Through four consecutive years all dead mink at the Danish Fur Breeders Research Center was autopsied. A total of 480 breeding females and 576 kits from the growing and furring period were investigated macroscopically. Further, dead kits in the nursing period were counted. The main courses of death among breeding females were emaciation in the winter period, dystocia, mastitis and nursing sickness. The main courses of death among kits in the growing and furring period were urine infections and urinary stones, enlarged fatty liver, emaciation and bite infections. In the nursing period kit loss was mainly due to stillborn kits, greasy kits, diarrhoea and cannibalism.

Meeting at DIAS, Research Centre Foulum, 19 September 2006 on the subject 'Large mink – large challenges. Production of high-yielding mink without negative effects'. Internal Report, Husbandry, no. 2, September 2006 (in Danish). 4 pp, 4 figs, 2 refs. Author's abstract.

Is there a relation between selection for time of birth and mating willingness in female mink?

M. Fredberg, P. Berg, B.K. Hansen

The aim of this study is to investigate how selection for late time of birth affects females' mating willingness in relation till first mating and re-mating. In this experiment two lines of mink were divergently selected for time of birth. Flushing and mating were started about one week later in the line

selected for late time of birth. In this study a female's willingness to mate is defined based on the number of failed mating attempts. Willingness to mate was analysed by using a threshold model. Females' willingness to mate was higher but the re-mating percentage was lower in the line selected for late time of birth compared to the line selected for early time of birth. The increased willingness to mate in the line selected for late time of birth can be a result of both the postponed time of mating and the selection. Willingness to mate increased when the date of the first mating attempt was postponed. Furthermore there was no difference between selection lines in the number of barren females.

Meeting at DIAS, Research Centre Foulum, 19 September 2006 on the subject 'Large mink – large challenges. Production of high-yielding mink without negative effects'. Internal Report, Husbandry, no. 2, September 2006 (in Danish). 7 pp, 2 figs, 3 tables, 9 refs. Authors' abstract.

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