SCIENTIFUR

NO. 2, MAY 1983.

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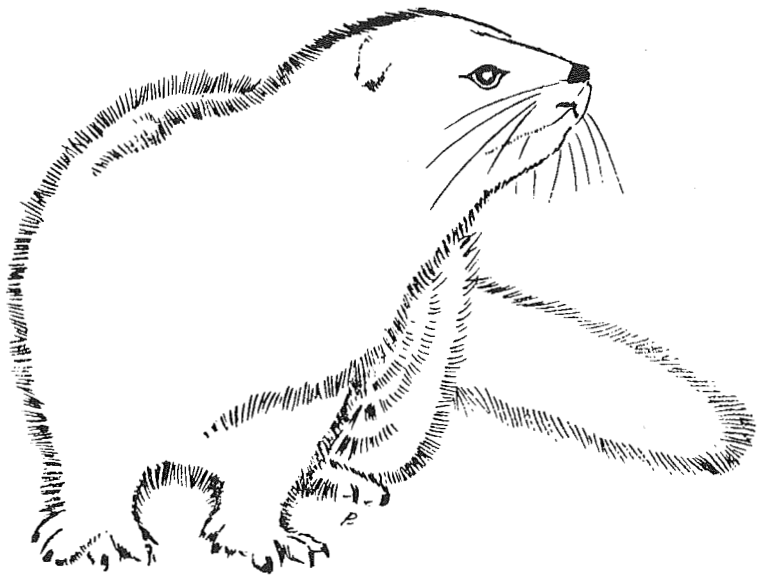

SCIENTIFUR

ISSN 0105-2403

VOL. 7, NO. 2

MAY 1983

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A COMPARISON OF RUNNING AND SWIMMING ENERGETICS IN THE MINK. Terrie M. Williams, Rutgers Univ., New Brunswick, N.J., USA. (Am. Zool. 20 (4) 1980). Code 11-M.

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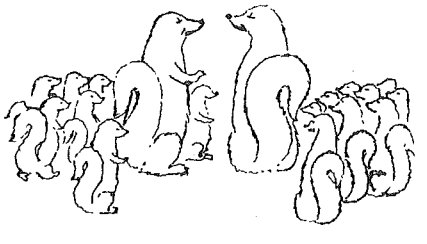

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IDIOPATHIC AMYLOIDOSIS IN THE STONE MARTEN (MARTES FOINA): IDENTIFICATION OF AMYLOID FIBRIL PROTEINS IN TISSUE SECTIONS USING THE IMMUNOPEROXIDASE TECHNIQUE. R.P. Linke, O. Geisel, M. Eulitz, W.B.J. Nathrath, Inst. für Immunologie der Universität, Schillerstrasse 42, D-8000 München 2, Fed. Rep. Ger. (Blut 41, 465-468, 1980). Code 9-O.

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8. COMMUNICATION

Book review: PHYSIOLOGICAL STATE OF FUR-BEARING ANIMALS AND THE WAYS OF ITS REGULATION. Prof. V.A. Berestov. Code 3-14-M-F-O. 78

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PHYSIOLOGICAL BASES FOR NONSPECIFIC IMMUNITY OF FUR-BEARING ANIMALS. V.A. Berestov, G.M. Malinina, L.B. Uzenbaeva. Code 3-14-M-F-O.

PRINCIPLES FOR DIAGNOSTIC ENZYMOLOGY AND THEIR USE IN FUR FARMING. L.K. Kozhevnikova. Code 3-9-14.

THE EFFECT OF DIFFERENT FEEDING LEVEL ON THE PHYSIOLOGICAL STATE OF FUR-BEARING ANIMALS. G.G. Petrova. Code 6-3-14-M-F-O.

MICROCLIMATIC CHARACTERISTICS IN THE CLOSED TYPE OF SHADE AND ITS EFFECT ON THE REPRODUCTIVE FUNCTION OF MINKS. N.N. Tyutyunnik. Code 10-5-M.

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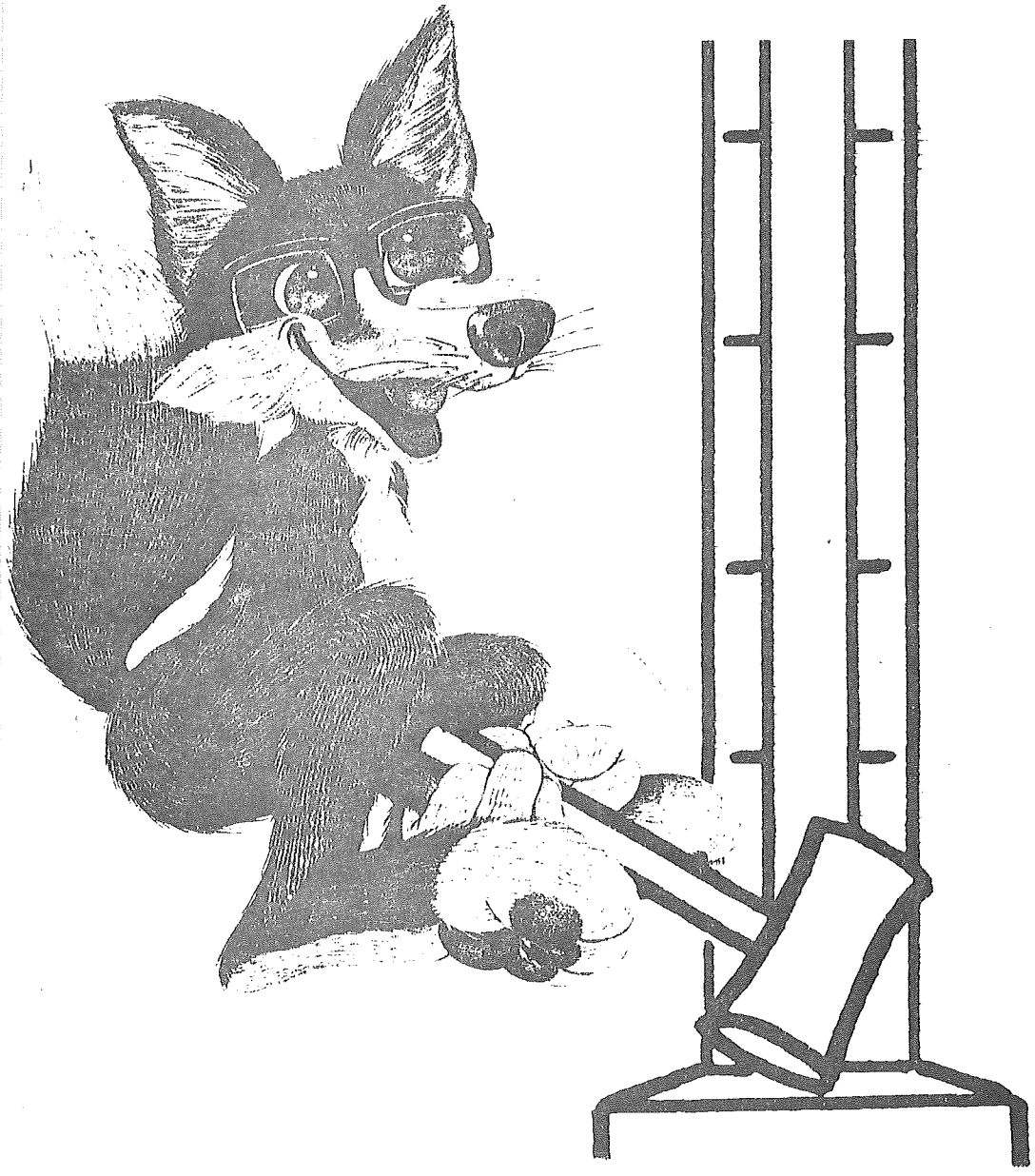

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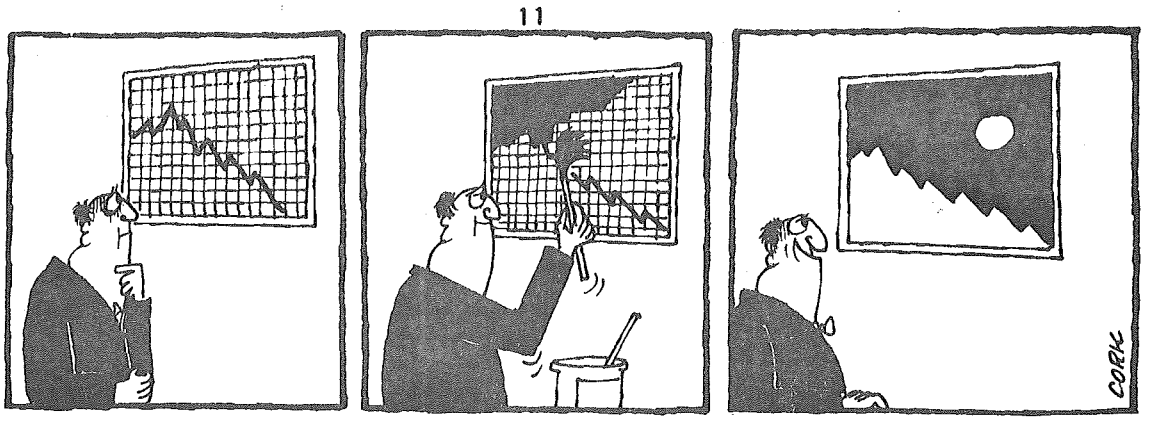


N O T E S

SCIENTIFUR, VOL. 7, NO. 2, 1983.

When we started publishing SCIENTIFUR we usually were waiting for reports and abstracts so that SCIENTIFUR might give an impression of living up to its idea - of being the best information source regarding scientific matters in the fur animal production.

Today, we have - thanks to you and thanks to a lot of data bases of scientific literature - great troubles in bringing all relevant information in SCIENTIFUR. That is because of lack of time and the necessity of keeping the weight of each issue below 250 grammes. If we exceed this limitit will be too expensive to produce and distribute SCIENTIFUR.

Therefore, we have discussed the methods of giving more information on the space available. We neither like to reduce the size of the text, nor eliminate pictures etc., which can give you a hopefully funny break in the reading of heavy abstracts or reports. It is also impossible, within the economical limits, to produce e.g. 6 issues per volume. Our conclusion have been to select the material in the following way:

1) Original reports. (as short as possible).

2) Abstracts (or summaries) of reports from all kinds of experiments or investigations in the production side of fur animal production.

3) Titles, authors' name and address and the publishing journal for reports which do not deal directly with the production side, or if we do not have received abstracts in English as requested.

This will give us the opportunity to inform you about all material received concerning fur animal production and include it to the Index (in preparation).

The presentation of titles will be done in the following way:

Title of the report in English. If not English followed by abbreviation for original language.

Name(s) of author(s) and address of first author or the author from whom reprints can be obtained.

Journal in which the report has been published.

For abbreviations of languages the following codes will be used:

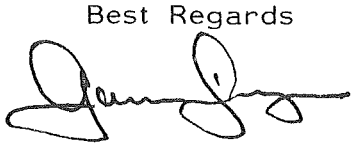
. List of abbreviations for languages as suggested by the CCL

ALBA	Albanian
ARAB	Arabic
BULG	Bulgarian
CHIN	Chinese
CZEC	Czech
DANH	Danish
DUTH	Dutch
ENGL	English
FINN	Finnish
FLEM	Flemish
FREN	French
GERM	German
GREK	Greek
HEBR	Hebrew
HUNG	Hungarian
ITAL	Italian
JAPN	Japanese
LITH	Lithuanian
NORG	Norwegian
PERS	Persian
POLH	Polish
PORT	Portuguese
ROMN	Rumanian
RUSS	Russian
SLOE	Slovak
SPAN	Spanish
SRCR	Serbo-Croatian
SWED	Swedish
TURK	Turkish
UKRN	Ukrainian
YUGO	Yugoslavian

We hope, by doing this, to increase the value of SCIENTIFUR for you.

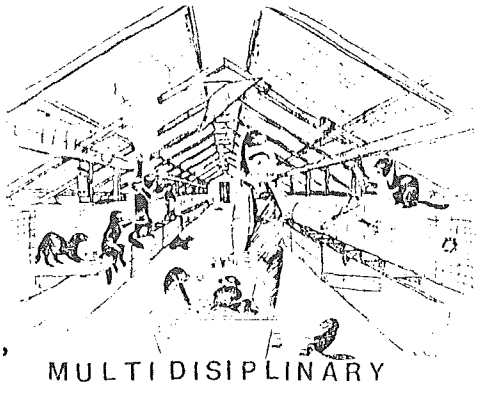
Finally, I personally want to send my hearty thanks to all of you who have sent regards in connection to my birthday and my 25-years anniversary. It has given me a great feeling of having a lot of friends in the world, and be sure, dear friends, you have at least one in the small Denmark.

Best Regards



Your Editor

Gunnar Jørgensen



Original Report.

ELECTROCUTION OF FOXES

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Abstract

The routine practice of electrocution of foxes by the Fox final apparatus was observed. The measured current was on average 0.31 (± 0.01 s.d.) A, the voltage 111.2 (± 18.7) V and the stunning time 3.0 (± 0.3) seconds (n = 40).

The EEG (electroencephalogram) and the ECG (electrocardiogram) were recorded in 12 foxes. The current was initially applied for 1 sec. Ten foxes showed a general epileptiform insult (= unconscious) which was interrupted by a heart fibrillation, based on the EEG and ECG traces. Two foxes showed a general epileptiform insult while the heart fibrillation was incomplete. These two foxes recovered again. After the second stunning with a duration of about 3 seconds the heart fibrillation was complete in these animals. In the EEG and ECG experiments the voltage was on average 110.0 (± 7.9) V, the current 0.40 (± 0.11) A and the stunning time 1.1 (± 0.3) seconds (n = 12).

The observations of the method in practice and the EEG and ECG measurements suggest that electrocution of foxes by the Fox final apparatus is a quick and effective method if the current delivery is at least 3 to 4 seconds.

Introduction

Euthanasia of animals should be conducted in a rapid and painless way from the point of view of animal welfare. Various methods of euthanasia are described in the literature such as mechanical and electrical techniques, parenteral administration of anaesthetics and inhalation of gases (AVMA, 1972; UFAW, 1975). Although CARDING (1968) and VINTER (1965) recommended gas inhalation as the most efficient method for killing large numbers of animals, electrocution may be also useful under these conditions (LAMBOOY et al., 1982).

Electrical stunning is recommended for various species of slaughter animals provided that the current used is sufficient to cause a general epileptiform insult (HOENDERKEN, 1978; LAMBOOY, 1981). An epileptiform insult is an abnormal activity in which the brain is severely stimulated. A general epileptiform insult commences with an initial phase of tonic muscle spasm followed by a phase of clonic muscle spasm and ultimately an exhaustion phase will occur with muscle flaccidity (MÜLLER, 1968, 1970). During all three phases an animal is unconscious (MÜLLER, 1968, 1970). Electrical stunning, when performed ineffectively, can be painful and

paralysis may occur without loss of consciousness (CROFT, 1952a, 1952b; HUME, 1963; HOENDERKEN, 1978). When sufficient current passes through both the brain and the heart the animal is killed (BLACKMORE et al., 1979; LAMBOOY, 1982; LAMBOOY & SPANJAARD, 1982). The current should not only be of sufficient strength in order to be effective, but should also passed through the body for a sufficient length of time to cause heart fibrillation or cardiac arrest (LAMBOOY et al., 1982).

The season in which furred animals are killed is relatively short. The most commonly used methods for euthanasia are gasses or electricity. An electrical stunning method for mink has been developed, however the animals must be killed by dislocation of the neck (LOFTSGARD et al., 1972) A true electrocution apparatus for foxes (the Fox final*) is available. In this method a rod-shaped electrode is placed in the rectum of the fox, while the other pole is bitten by the animal.

The purpose of this study was to investigate the electrocution of foxes in practice and to determine the effectiveness of this method of euthanasia.

Material and methods

The electocution method was observed at a farm during routine euthanasia of foxes. The voltage and current were recorded during electrocution of 40 foxes, according to the method described by HOENDERKEN (1978).

Ten female and two male foxes with an average weight of 7.5 (± 0.9 s.d.) kg were used for the EEG (electroencephalogram) and ECG (electrocardiogram) experiments.

One day prior to the experiments all animals were premedicated with acepromazine (Vetranquil, Clin. Midy) 0.2 mg per kg body weight i.m., combined with methadon (methadon HCl, A.U.V.) 0.2 mg per kg i.m. and atropine 0.5 mg per animal. Half on hour after administration of the premedication, the animals were anaesthetised with thiopentone sodium (Nesdonal, Specia) 10 mg per kg i.v. and were equipped with surgically implanted EEG electrodes (steel screws), according to the method described by LAMBOOY (1982). Electrodes were implanted in the following positions: 1 cm to the right of the sagittal suture and 2 cm caudal to a line extending between the caudal eye corners; 1 cm to the right of the sagittal suture and 1 cm caudal to the first electrode and one earth electrode in the sagittal suture midway between the above two electrodes.

*Fox final, Ostrobotnia Päls AB, Vasa, Finland.

Before the experiments the foxes were sedated with acepromacine 0.2 mg per kg i.m., which was necessary because during the EEG and ECG measurements the animals had to be manually restrained. The three ECG needle electrodes were placed subcutaneously just before the experiment: one on the chest behind the elbow, one dorsally at the same height of the elbow on the back and one earth electrode.

The EEG and ECG were recorded (Elema Schönander, Sweden) before stunning, for 1 min. immediately after stunning and for 30 seconds at 3 min. after stunning.

The electrodes of the Fox final apparatus were placed in the rectum and in the mouth. During stunning, current and voltage were recorded. The EEG and ECG were blocked at this time to protect the recording equipment. Initially the stunning current was applied for 1 second. If the animal was not killed after 3 minutes a second stunning of approximately 4 seconds was performed.

The behaviour of the animal, in particular symptoms of spasms, exhaustion and recovery, was assessed. The EEG traces were analysed after stunning during the phase of tonic/clonic muscle spasm, the phase of low EEG activity and the recovery phase.

Results and discussion

In the routine practical electrocution a person restrained the fox by holding the tail and a strap round its neck. It was easy to put one electrode in the rectum and the other electrode was always bitten. During and after the current delivery the animals showed a tonic cramp which changed to relaxation after a short period. All animals were killed by one current delivery of about 3 to 4 seconds. The measured voltage, current and stunning time were in 40 animals on average 111.2 (± 18.7 s.d.) V, 0.31 (± 0.01) A and 3.0 (± 0.3) seconds respectively.

Observation of the routine practice of electrocution of foxes showed that it was a quick, effective and simple method. In contrast the EEG and ECG measurements took a lot of time and moreover unsedated foxes becaume nervous since they had to be tightly restrained by two people. Therefore the foxes were sedated before the experiments.

After electrocution all animals showed a general epileptiform insult. Except in two animals, this insult was interrupted by acute cardiac fibrillation. (see figure), based on the EEG and ECG traces. The terminal iso electric line was observed after 12.9 (± 2.3) seconds (n = 10). The

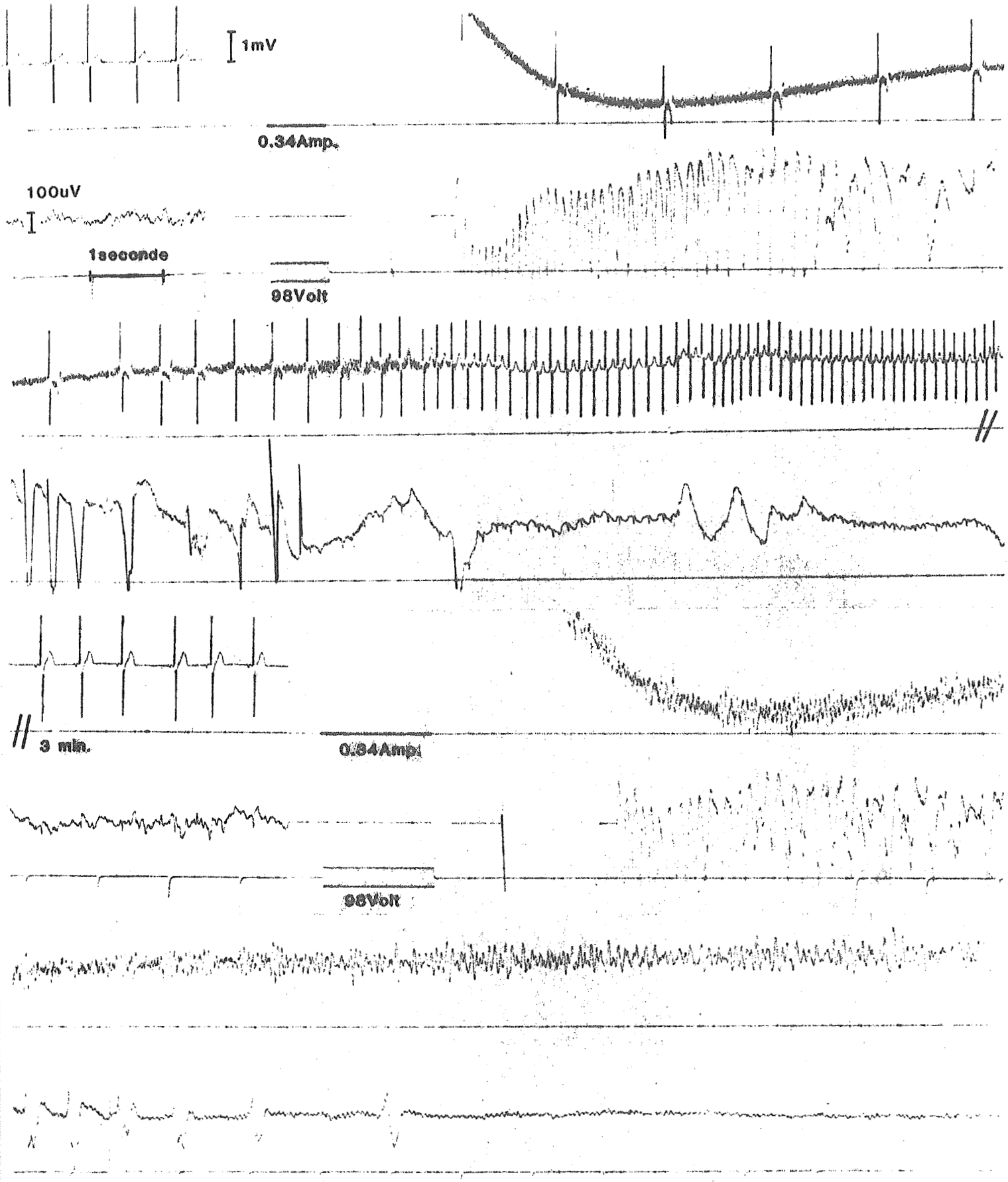

Figure: Trace of the EEG before and during a general epileptiform insult after electrocutio The tonic phase (appr. 7 sec.) is followed by a clonic phase (appr. 7-13 sec.) and ultimately an exhaustion phase. After the first electrical stunning the heart fibrillation is incomplete. After 3 min. the fox had recovered. After the second stunning the general epileptiform insult is interrupted by heart fibrillation and the fox did not recover.

phenomenon of interruption of the insult was also observed in veal calves and sheep when cardiac arrest occurred (LAMBOOY, 1982; LAMBOOY & SPANJAARD, 1982).

The two animals with an incomplete cardiac fibrillation showed a general epileptiform insult with a tonic, clonic and exhaustion phase and recovered (see figure). After the second stunning of about 3 seconds these two animals showed also an interrupted insult and were killed. During a general epileptiform insult, and thus also during an interrupted insult, an animal is unconscious (MÜLLER, 1968, 1970).

Before stunning, the heart rate was on average 204 (± 59 s.d.) beats/min. Four out of twelve animals showed sinusarhythmia, two showed ST-deviation and two animals both of them, according to the EEG. Despite sedation, the heart showed, according to the ECG traces, the physiological phenomena characteristic of a heavy workload. Immediately after stunning all animals showed fibrillation of the heart, but two animals recovered. After the second stunning the heart of these animals showed fibrillation which resulted in their death. Thus a current delivery of one second seems to be too short to kill all animals. LAMBOOY et al. (1982) suggest a current delivery of more than 2 seconds in pigs. The use of 3 to 4 seconds in practical fox electrocution appeared to be sufficient.

During the EEG and ECG measurements the average voltage, current and stunning time were 110.0 (± 7.9) V, 0.40 (± 0.11) A and 1.1 (± 0.3) seconds, respectively.

In conclusion:

The observations of the electrocution of foxes in practice, and the EEG and ECG measurements suggest that the electrocution of foxes using the Fox final apparatus is a quick and effective method if the current delivery is at least 3 to 4 seconds.

Acknowledgements

Thanks are due to Mr. A.C.J. van Hoeckel for the research facilities at his farm. to Mr. N. van Voorst for the excellent technical assistance, to Drs. J.A. Roelofs (veterinary surgeon) for anaesthesia advices and Dr. P. Warriss (M.R.I., Bristol) for correction of the English text.

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DIURNAL RHYTHM OF BEHAVIOR OF MINKS MUSTELA-VISON RAISED UNDER HOT CLIMATE CONDITIONS.

СУТОЧНЫЙ РИТМ ПОВЕДЕНИЯ НОРОК, РАЗВОДИМЫХ В УСЛОВИЯХ ЖАРКОГО КЛИМАТА

Khairutdinov, Kh. Sh., Akhmetov, Iz., Inst. Physiol., Acad. Sci. Uzb. SSR, Tashkent, USSR.

The behaviour of 3 genotypes of adult minks M. vison Briss (standard, palomino, blue) in the spring and summer was observed in the Uzbek SSR, USSR. In the spring (temperature 20-23 degree C) the minks were active for 30-34% of the time. During the summer (temperatures 34-36 degree C) this activity was significantly reduced; the minks spent 79-81% of the time at rest. New standards were established for daily behavior in the Uzbek SSR which corresponds to the thermal conditions of this geographic zone.

Uzb. Biol. Zh., 0 (2), 1981, 27-30.
1 table, 1 fig., 6 references.
In Russian.

Abstract by Deutsches Inst. Fuer Med. Dokumentation und Information.

ACCLIMATIZATION OF MINKS IN THE UZBEK-SSR USSR.

АККЛИМАТИЗАЦИЯ НОРКИ В УЗБЕКИСТАНЕ

Khairutdinov Kh.Sh., Gazizov Vz., Akhmetov Iz. Inst. Physiol., Acad. Sci. Uzb. SSR, TAshkent, USSR.

The adaptation of minks to the high temperature environment of the Uzbek SSR, USSR, was studied. The thermoregulatory behavior of 3 genotypes of minks (blue, black-brown and light) kept in cages was observed. A more rapid respiration rate, an increase in body temperature and an increase in saliva were observed during exposure to high temperatures. Black-brown minks suffered to a greater extent from the effects of heat than light minks.

Further studies of thermoregulatory mechanisms, digestive physiology, age- and season-related changes, feeding behavior and food composition are recommended.

Uzb. Biol. Zh., 0 (3), 1980, 31-34, 1980.
In Russian.

Abstract by Deutsches Inst.Fuer med. Dokumentation und Information.

STUDIES ON THE ANATOMY OF THE KIDNEY IN MINK (MUSTELA LUTREOLA).

(Studiul macroscopic al rinichiului la nurca de crescatorie).

Miclea M., E. Muresan, Cornelia Duca, C. Lisovschi, I. Popovici, A. Pall, Romania.

Qualitative and quantitative studies on the anatomy of the mink kidney were performed. Theright kidney (Ren dexter) lies in the sublumbar region, between the last rib and the second lumbar transverse process. The left kidney (Ren sinister) lies ventral to the second, third and fourth lumbar transvers processes. The right kidney is linked by the liver with a hepato-renal ligament, while the left kidney is attached to the pancreas. In females, there is an ovary-renal ligament for each kidney. The average length, width and weight of the kidney is 3.6 and 2.8 cm, 1.7 and 1.5 cm, and 7.3 and 4.1 g in males and females, respectively. The cortical substance (Substantia corticalis) is three times Thinner than the medullary substance (Substantia medullaris) of the kidney.

Buletinul Inst. Agronomic, Cluj-Napoca, Zootech. si. Med. Vet., 35, 1981.
2 figs.

Authors' summary.
In Romanian with subtitles and summary in English.

HISTOENZYMOLOGICAL STUDIES ON THE MINK KIDNEY.

(Cercetari histoenzimologice asupra rinichiului nurca de crescatorie).

E. Muresan, Cornelia Duca, M. Miclea, Z. Papay, A. Pall, Romania.

The activity of succindehydrogenase, adenosine triphosphatase, acid and alkaline phosphatas, nonspecific esterases, lipase and accetylcholinester-aSE WAS STUDIED IN THE MINK KIDNEY: Both, the activity level and the topographic chemistry of these enzymes, are in connection with their functions in the various processes like membrane filtration, selective permeability, ionic transfer, absorption, resorption and synthesis within certain parts of the nephron.

Buletinul Inst. Agronomic, Sluj-Napoca, Zootehn.si Med. Vet., 35, 17-22, 1981.
6 figs. Authors' summary.
In Romanian with subtitles and summary in English.

HISTOCHEMISTRY STUDIES ON MINK KIDNEY.

(Studiul histochimic al rinichiului la nurca de crescatorie).

Muresan E., Cornelia Duca, M. Miclea, Z. Papay, A. Pall, Romania.

Histochemistry of the mink kidney parenchyma showed a good distribution of the PAS-positive substances within the renal corpuscles, the basement membranes of the convulated tubules, the brush-like border of the nephocytes, the basement membranes of the loop of Henle and of the distal convulated tubules. Acid mucopolysacharides were present in the glicocalix of the renal corpuscles. The presence of these substances is in connection with filtration, resorption and excretion functions of the nephron.

The DNA was evenly spread in all segments. The RNA was present in large amounts in the nephrocytes of the proximal convulated tubules, in connection with ribosomes activity in the synthesis of kidney self products.

Buletinul Inst.Agron. Cluj-Napoca, Zootehn.si Med. Vet., 34, 15-19, 1980.
5 figs., 11 references. Authors' summary.
In Romanian, summary in English..

HISTOLOGICAL STUDIES ON MINK KIDNEY.

(Studiul histomorfologic al rinichiului la nurca de crescatorie).

Duca Cornelia, Miclea M., Muresan E., Pall A., Papay Z., Romania.

Histological structure of mink kidney was similar to that of other having a smouth and anipapillar kidney appeared. In comparison with dog and cat kidneys, some differences appeared when nephron measurements were undertaken.

Buletinul Inst. Agronomic. Cluj-Napoca, Zooth. si Med. Vet., 34, 9-14, 1980.
6 figs., 9 ref. Authors' summary
In ROMN, summary in ENGL.

COMPOSITION AND RATIOS OF FATTY ACIDS IN THE SUBCUTANEOUS FAT OF FUR-BEARING ANIMALS.

(Sostav i sootnoshenie zhirnykh kislot podkozhnogo zhira pushnyk zverei).

V.A. Pirozhnik, USSR.

The aim of our studies was the determination of the composition and composition and ratios of the higher fatty acids in the subcutaneous fat of fur-bearing animals, e.g. mink, blue fox, silvery-black fox, nutria, red fox, white fox and the raccoon-like dog.

We obtained samples of fat from 5-year-old sable during the slaughter at the Pushkin fur farm. The age of the other types of animals whose fat we studied ranged from 6 mo nths to 1 1/2 years. We took fatty tissue from the groin and the cervico-thoracic parts of the carcass.

In the subcutaneous fat of all the types of fur-bearing animals studied, six principal fatty acid predominated: from among the saturated fatty acids - palmitic, myristic and stearic and from among the unsaturated fatty acids - palmitolenoic, oleic and linoleic. In the subcutaneous fat of the silvery-black fox, mink, red fox, raccoon-like dog, blue fox and

5-year-old sable, unsaturated fatty acids predominated while in the fat of white fox and nutria it was the saturated fatty acids.

In the fat located around the internal organs of mink, linoleic acid was reduced while linolenic acid was increased compared to the subcutaneous fat.

Some differences in the composition of the fat of the various types of fur-bearing animals were noted. Thus in the fat of the silvery-black fox there is 10% more oleic acid than in the fat of the red fox.

The high content of unsaturated fatty acids which characterizes the subcutaneous fat of mink and foxes is a valuable resource for the cosmetic industry. On the other hand, the predominance of unsaturated acids in the subcutaneous fat of these types of animals must be looked upon as a detrimental characteristic since it quickly oxidizes in the air.

Sb. Nauchno Tekhnol. Inf. Vses. Nauchno Issled. Inst. Okhot. Khoz. Zverovod. (47-48) 121-124, 1975.

Fisheries and Marine Service, Translation Series No. 4144.
Dept. of Fish. and the Environm., Fisheries and Marine Service, Halifax Laboratory, Halifax, N.S. 1977.

Translated by the Translation Bureau (AMM), Multilingual Services Div., Dept. of the Secretary of State of Canada.

1 table, 6 references, 7 pages.

In ENGL. Abstract by Gunnar Jørgensen.

ENERGETIC CONTENT OF MUSCULATURE IN ALOPEX LAGOPUS (L. 1758) (CARNIVORA).

(Energeticky obsah svaloviny druhu Alopex lagopus (L. 1758) (carnivora).

Pavel Suchý, Milan Stanèk, A. Frantìsek Tenora, Vysoka skola Zemedelska, Brno, Czechoslovakia.

The study presents data on the energetic content of musculature in the species Alopex lagopus viz. of young animals in the age of 7 months. The following values were measured by the method of direct calorimetry: dry matter 27.57-29.29%, water 70.71-72.43%, energetic values of fresh

biomass and dry matter 6.474 KJ/g - 7.196 KJ/g and 23.344 KJ/g - 24.613 KJ/g, resp. Probably due to the fact that only young animals were studied, no significant differences were found in the indices mentioned above between males and females.

Acta univ. agric. Brno, fac. agronom, XXIX, 1981, 3-4, 243-246.
1 table, 8 references. Authors' summary.
In CZEC, summaries in CZEC, RUSS, ENGL, GERM.

HAEMATOLOGICAL AND SERUM CHEMISTRY PROFILES OF FERRETS (MUSTELA PUTORIUS FURO).

Elsbeth J. Lee, W.E. Moore, H.C. Fryer, H.C. Minocha, Div. of Biology, Kansas Agricultural Expt. Station, Manhattan, Kansas 66506, USA.

Female, male and castrated male ferrets were studied. Weight gain plateaud at 28 weeks of age with males about 500 g heavier than females. No statistically significant differences in haematology were observed with age, but alkaline phosphatase and alanine aminotransferase levels fell while glucose increased. Haemolysis led to various changes including marked increases in total protein, albumin, inorganic phosphate and sorbitol dehydrogenase.

Laboratory Animals, 1982, 16, 133-137.
1 fig., 2 tables, 18 references. Authors' summary.
In ENGL. Summary in ENGL and GERM.

INDUCTION OF WINTER FUR GROWTH IN MINK WITH MELATONIN.

W.J. Rose, F. Stormshak, J. Adair, J.E. Oldfield, Oregon State University, Dept. of Animal Science, Corvallis, Oregon 97331-6702, USA.

A series of experiments were conducted to determine the effects of melatonin on fur growth in mink. Thirty adult female dark mink were assigned randomly into three groups and received the following treatments beginning

in mid-June: 1) controls, exposed to natural changes in daily photoperiod; (2) artificial daily photoperiod of 6 h light: 18 h dark and (3) natural photoperiod plus a silastic implant containing 10 mg melatonin inserted sc over the scapular region. Mink in all groups had a 2 cm^2 area of fur shaved from the right hip and fur growth was measured to the nearest 1 mm at biweekly intervals. All mink were sacrificed and pelted during the last week of October. Growth of winter pelage occurred earlier in mink implanted with melatonin or subjected to reduced daily light than that of controls ($P \leq .05$). There was no significant differences between growth of winter pelage in melatonin-treated mink or those subjected to reduced daily light. Additional experiments were performed to evaluate the effects of different doses of melatonin on fur growth in adult females and also to test the effects of a single dose of melatonin on fur growth in male and female kits. In these studies all mink were exposed to natural changes in photoperiod and received either an empty silastic implant or one containing 5 or 10 mg melatonin. A dose of 5 or 10 mg melatonin was equally effective in stimulating early growth of winter pelage in adult females compared with that of controls ($p \leq .05$). A prime winter pelage was attained earlier in male and female kits implanted with 5 mg melatonin than in control kits ($p \leq .05$) and there was no difference in melatonin-induced fur growth due to sex. These results sugest that photoperiodic effects on fur growth may be mediated by the pineal gland via its secretion of melatonin.

Fur Rancher, Blue Book, 1983 Ed., 56-57 & 70.
Paper was presented at the 1982 Annual Meeting of the American Society of Animal Science, University of Guelph, Ontario, Canada.

Author's summary.

SOME ECOLOGICAL-PHYSIOLOGICAL CHARACTERISTICS OF THE ARCTIC FOX (ALOPEX LAGOPUS).

(Nekotorye Ekologo-Fiziologicheskie Kharakteristiki Pestsa (Alopex lagopus).

A.N. Segal', T.V. Popovich, M.A. Vain-Rib, USSR. Transbaikalian Research Institute of Sheep Husbandry, (Chita), and Institute of Biological Problems of the North, Far East Science Center of the USSR Academy of Sciences (Magadan).

The ecological-physiological characteristics of 5 Arctic foxes caught and

kept in captivity on the Aion Island (Chukotka) were being studied during one year and compared with those of the blue (cage) fox dwelling in Magadan. The food consumption at its abundance is determined by the "caloric appetite" ensuring the stability of body weight. The amount of the consumed food by weight depends on its quality and equals 600 Cal per day. Under the long-term starvation (10 days), the Arctic foxes are in the state of rest losing daily 1.0-1.2% of the body weight at the constant level of metabolism and body temperature. The metabolism and physiological functions of the young organisms weaken from autumn (2.5-3 months) till spring (9-10 months) but the body temperature increases and the diurnal expenses of energy raises 1.5 times. The blue fox is characterized by somewhat slower metabolism that appears to be accounted for by the greater fat content. The adult animals do not perform thermoregulation in the range of extremal temperatures +15-÷35° at the expense of changes in the rate of metabolism but the body temperature 39.5-40.0°) is extremely stable. The cutaneous-vascular reactions of physical thermoregulation are expressed weakly and limited in scale. The temperature of cutaneous body surface differs insignificantly from the rectal temperature. The axial thermogradient is expressed mainly by the overfall of temperatures through the fur thickness (97% in winter). The digging activity and the emotional-motor stimulation increase the expense of energy 2.5 times.

Zool. Zh. 55, 741-754, 1976.

Fisheries and Marine Service, Translation Series no. 4475.

Translated by the Translation Bureau (JA), Multilingual Services Division, Dept. of the Secretary of State of Canada.

6 tables, 9 figs., 19 references. Authors' summary.

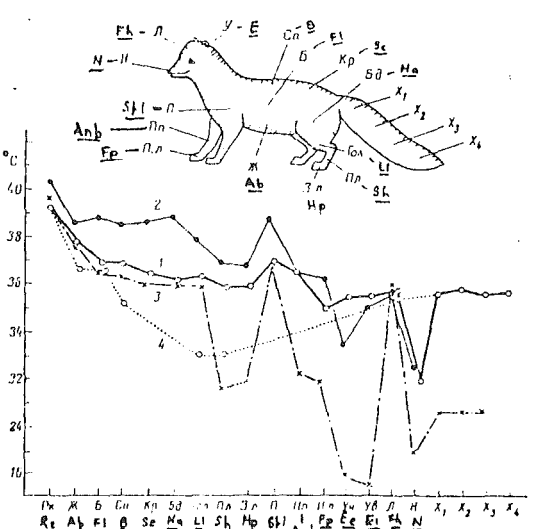


Рис. 2. Температурный профиль тела

Среднее по 3 белым песцам в возрасте 2.5 (1), 9 (2), 11 (3) месяцев и 6 голубым (4) 4.5 мес.; у белых песцов температура измерялась при 10—15°, у голубых — при 0°. *Рк* — ректум, *Ж* — живот, *Б* — бок, *Сп* — спина, *Кр* — крестец, *Бд* — бедро, *Гол* — голень, *Пл* — плюсна, *З.л* — задняя лапа, *П* — плечо, *Пл* — предплечье, *П.л* — передняя лапа, *У.н* — ухо, наружная поверхность, *У.в* — ухо, внутренняя поверхность, *Л* — лоб, *Н* — нос, X_1, X_2, X_3, X_4 — хвост на 4 уровнях

Fig. 2. Temperature profile of the body

LABORATORY STUDIES ON THE PELTS OF NORWEGIAN AND POLISH BLUE FOXES.

(Der Pelz der norwegischen und polnischen blauen Polarfüchse im Lichte der Laborforschungen).

Ryzard Cholewa, Inst. für Züchtung und Technologie der Tierproduktion der Landwirtschaftlichen Akademie in Poznan, Polen.

Data are tabulated for the length, thickness and colour score of hairs on 37 Norwegian and 37 Polish fox pelts. The Norwegian foxes tended to have longer hairs, a denser pelt, and darker colour than the Polish foxes.

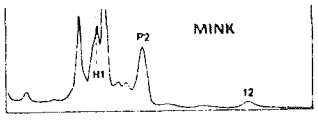
Deutsche Pelztierzuchter, 56 (4), 55-57, 1982.
1 table. CAB-abstract.
In GERM.

AN ELECTROPHORETIC INVESTIGATION OF MAMMALIAN SPERMATID-SPECIFIC NUCLEAR PROTEINS.

Maryvonne Lanneau, M. Loir, I.N.R.A., Station de Physiologie de la Reproduction, 37380 Nouzilly, France.

Using standardized methods for protein extraction and analysis, the testes of rams, bulls, goats, boars, stallions, rats, cats, hedgehogs, European mink and ferrets were examined for basic spermatid nucleoproteins by electrophoresis. The results suggest that differences exist in the total number of these proteins as wellas in the number and amount of the cross-linked cystein-containing proteins. These differences appear to be more family-specific than species-specific.

J. Reprod. Fert. 1982, 65, 163-170.
3 figs., 20 references. Authors Summary.
In ENGL.



Text-fig. 2. Electrophoregrams on 6·25 M urea gels of 3% TCA soluble basic testicular proteins. Hedgehog-1 = in breeding season; hedgehog 2 = in non-breeding season. See text for proteins illustrated.

DISTRIBUTION AND POLARITY OF ACTIN IN THE SENSORY HAIR CELLS OF THE CHINCHILLA COCHLEA.

Norma Slepecky, Steven C. Chamberlain, Dept. of Anatomy and Otolaryngology, SUNY Upstate Medical Center Syracuse, New York 13210, USA.

The distribution and polarity of actin in sensory hair cells of the chinchilla cochlea has been determined by decoration af actin filaments with myosin subfragment S1. Decorated actin filaments of the same polarity were present within the stereocilia above the cuticular plate. However the filaments in the rootlets and the thin filaments projecting laterally from the rootlets into the cuticular plate did not decorate with S1. Decorated actin filaments were present within the cuticular plate, and near the plasma-membrane filaments of opposite polarity were observed. In the cross-striated region at the base of the cuticular plate of inner hair cells, decorated filaments were present in the dense bands of the cross-striations but the thin filaments perpendicular to the dense bands were not decorated. These results are discussed with respect to the two mechanisms that have been suggested for actin-myosin mediated movement of the stereocilia of inner-ear sensory cells.

Cell Tissue Res. 1982, 224, 15-24.
6 figs., 22 references. Authors' summary.

UTILITY OF COLORIMETER MOMCOLOR FOR EVALUATING COLOUR OF STANDARD CHINCHILLA PELT.

(przydatnośc kolorymetru momcolor w ocenie barwy okrywy szynszyli standard.)

Ryzard Cholewa, Danuta Lukomska, Czeslaw Madry, Instytut Hodowli i Technologii Produkcji Zwierzecej, AR, Poznan, Poland.

Investigations were carried out on 31 mature pelts of standard chinchilla. Their colours (intensity, design, purity) were estimated visually expressingthe assessment in scores according to the scale used when evaluating live animals. Then the colorimeter Momcolor was used for evaluation

of coat colour in 3 points (on head, back of neck and belly) determined at the preliminary measurements of 3 random pelts in 21 areas on the whole pelt surface.

The results obtained showed rather slight conformity of organoleptic and colorimetric evaluation. The relationships of two evaluations were closer on head and on back of the neck and for this reason these points were chosen for eventual measuring the coat colour with colorimeter.

Roczniki Akademii rolniczej w Poznaniu, 101 (Zootechnica 25) 51-57, 1978.
4 tables, 5 references. Authors' abstract.
In POLH. Abstract and subtitles in ENGL, abstract in RUSS.

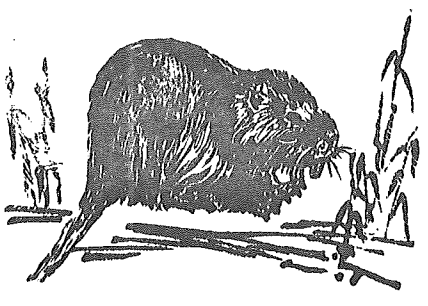
THE WHITE BLOOD PICTURE IN MALE COYPU IN THE POSTNATAL PERIOD.

(Bíly krevni obraz u samcu nutrii v postnatalnim obdobi).

P. Jelínik, M. Glásrová, Vysoká skola zemedelská, Zemedelská 1, 662 65 Brno, Czechoslovakia.

In ten time intervals, in 90 clinically healthy male coypus, ages 1 to 300 days, the characteristics of the white blood picture were determined from the blood obtained from the heart during the summer season: leucocyte count, absolute number of lymphocytes, and differential leucocyte count. The summarized mathematico-statistical characteristics were calculated from the values obtained in each age group and the significance of differences was determined by the analysis of variance.

Veterinarni Medicina, 27 (LV) 1982, 337-348.
2 tables, 2 figs., 44 references. Authors' abstract.
In CZEC. Subtitles and summary in ENGL, abstract in RUSS and GERM.

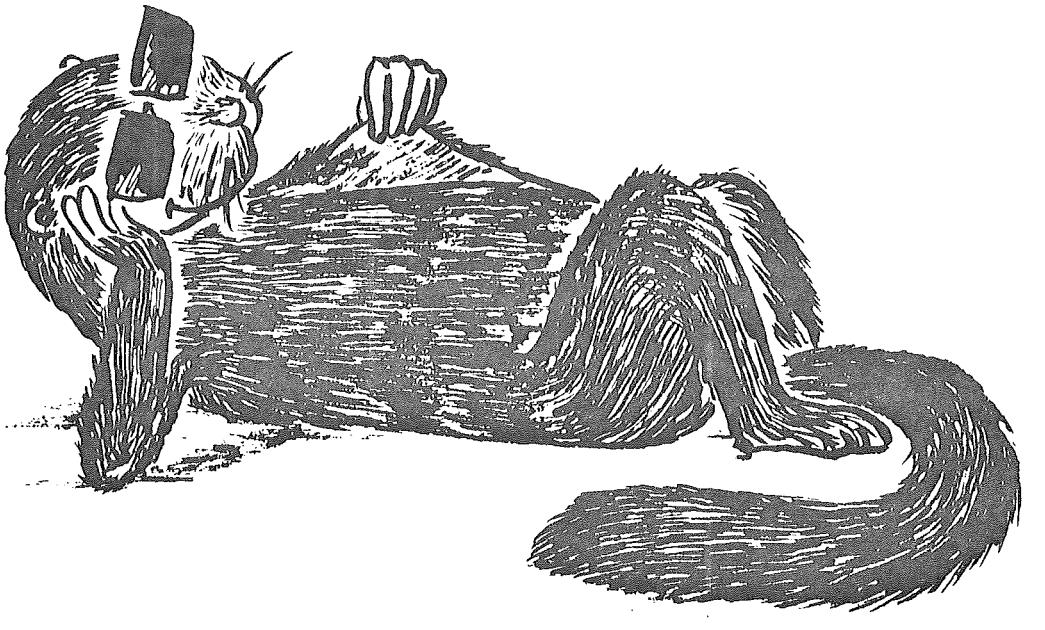


A TECHNIQUE FOR DESCENTING FERRETS.

Nancy C. Coleman, Greenville Animal Clinic, 326 Highway 1 South,
Greenville, Missisippi 38701, USA.

Ferrets prossess musk-producing glands situated in the same area as the anal sacs of dogs and cats. Unlike skunks, ferrets have no distinct papillae that can be grasped to facilitate surgical removal of the gland. An acetylpromazine/ketamine HCl combination plus methoxyfluorane was administered for anesthesia. The scent gland orifice was located in its cyrpt and elevated with Allis tissue forceps. After an elliptical incision was made around the orifice, careful dissection resulted in exteriorization of the gland. The cavities were packed with an antibiotic-steroid ointment and recovery was uncomplicated.

Veterinary Medicine/Small Animal Clinician, Vol. 77 (3), March 1982.
5 figs., 3 references. Author's abstract.



Our best wishes for a good summer holiday.

GENETICS

PHENO-GENETIC ANALYSIS OF PIGMENTATION IN MUTANTS OF THE AMERICAN MINK (MUSTELA VISON SCHR.). II. EFFECT OF ALEUTIAN MUTATION AND THE INTERACTION BETWEEN THE ALEUTIAN AND SILVER-BLUE COAT COLOUR GENES IN THE GENOTYPE OF THE SAPPHIRE MINK. EFFECT OF "STEWART" FACTOR ON HAIR PIGMENTATION.

(Fenogeneticheskij analiz pigmentatisii u mutantov Amerikanskoj norki (Mustela vison Schr.). II. Effekt mutatsii aleutskaya i vzaimodejstviya genov aleutskoj i screbristo-goluboj okraski v genotipe sapfirovykh norok. Vliyanie faktora "Styuart" na pigmentatsiyu volosa).

L.P. Zvereva, D.K. Belyaev, G.N. Privalova, Inst. of Cytology and Genetics, Siberian Branch, Acad. Sci., USSR, Novosibirsk.

The morphological pattern of pigmentation and the mechanism of the formation of the grey color in aleutian mink are being studied. The mutation of the aleutian colour, not changing the synthesis ability of the melanocytes, affects the structure of cytoplasmic organellae of melanocytes -melanosomes, and, accordingly, it affects the size and form of the pigment granules.

Sapphire mink, homozygous in relation to the silver-blue and aleutian genes (ppaa), exhibit the properties peculiar to both mutations. In the sapphire minks, in addition to the disturbance of the ejection process, the size of the pigment granules sharply increases and their form changes.

It is observed that the gene-illuminator of "Stewart" in the heterozygous state and particularly in the homzygous state decreases the quantity of differentiated melanoblasts; it is assumed that, probably, this gene depresses the proliferative ability of these cells in the hair bulb.

It is shown that the interaction between genes leads to a significant rearrangement of the cells - to the formation of a new mechanism of realization of the effect of the gene in the development of colour.

Genetica, Vol. 12, 104-109, 1976.

Translated from Russian for the US Dept. of Agriculture, Agric. Res. Service and the Natl. Science Foundation, Washington D.C. by the Al-Ahram Ctr. for Scientific Translation, 1978.

1 table, 4 ill., 6 ref.

Authors' summary

G-BANDING OF CHROMOSOMES OF SEVEN SPECIES OF MUSTELIDS (CARNIVORA, MUSTELIDAE).

(G-okraska khromosom semi vidov kun'ikh (Carnivora, Mustelidae).

A.S. Grafodatskii, V.T. Volobuev, D.V. Ternovskii, S.I. Radzhabli, Inst. of Cytology and Genetics of the Academy of Sciences of the USSR (Novosibirsk) and the Inst. of Biology of the Siberian Div. of the Academy of Sciences of the USSR (Novosibirsk).

The chromosomal sets of seven species of mustelids were studied with the aid of the method of differential staining (G-method). A comparative analysis of the karyotypes showed that for the group of species under consideration there are two characteristic types of evolutionary rearrangements of chromosomes: Robertson rearrangements and "increases" in chromosomal material, apparently because of heterochromatin. The chromosomes of these species are not equivalent in terms of participation in the evolution of the karyotype: 6 pairs of autosomes and the sex chromosomes show a definite conservatism, remaining unaltered in all of the species, whereas the remaining chromosomes may enter into rearrangements of varying character. It is hypothesized that the evolution of the karyotype of mustelids proceeded from species with a large number of acrocentrics to species with a large number of two-armed chromosomes.

Zoologicheskii zhurnal, Vol. 55, no. 11, 1976.

Translated from Russian by
Dept. of the Secretary of State Translation Bureau,
Multilingual Services Division, Canada.
UDC 599.742.4:576.312.37:59.061.6.

11 pages, 3 figs., 4 references. Authors' summary.

In ENGL.

GENU FLEXUM IN POLAR FOXES.

(Kolano zgiete (genu glexum) u lisów polarnych.

Wojciech Krukowski, Zdzislaw Klos, Zaklad Chirurgii Instytutu Chorób Niezakaznych Wydzlalu Weterynaryjnego SGGW-AR, ul. Grochowska 272, 03-849 Warszawa, Poland.

In polar foxes (Alopex lagopus) the disease characterized by specific disturbances of hind legs was observed. One could notice almost horizontal thigh position, persistent knee joint inflexion and the ankle joint overstraight. The disease occurred in foxes between 3-6 month of life and was inherted. The disease animals grew much worse and the pelts were of lower value. The attempts of treatment failed. In the sick foxes there was found: lower body weight, changes in the structure of tight muscles, difficulties to straight the knee, some lesions in the bone structure of hind legs and pathological changes within the knee. There were not found any relations between the conditions of breeding and frequency of the disease.

Medycyna Weterynaryjna, 38, (1/3) 104-107, 1982.
2 tables, 4 figs. Authors' abstract.
In POLH. Summaries in ENGL and RUSS.

GENETIC POLYMORPHISM OF PLASMA α1-PROTEASE INHIBITORS IN SOME SPECIES OF DOMESTIC ANIMALS.

Bo Gahne, R. Kumar Juneja, Dept. of Animal Breeding and Genetics, The Swedish University of Agric. Sciences, S-750 07 Uppsala, Sweden.

The different methods of electrophoretic analysis and phenotypes of plasma α1-protease inhibitor (α1-PI) in horse, cattle, sheep, goat, pig, dog, mink, chicken and turkey were briefly reviewed. The biological significance and the possible associations with disease of α1-PI phenotypes were also discussed.

Copenhagen, Denmark. Royal Danish Agric. Society. Papers dedicated to prof. Johannes Moustgaard on the occasion of his seventieth Birthday, 26 Sept. 1981. Part of collective Document. (98-104, 1981).
1 table, 45 references. Authors' summary.

INHERITANCE OF PELT COLOUR IN THE POLECAT.

(Nedarvning av pelsfarge hos ilder).

Mohasina Syed, Knut Rønningen, Dept. of Animal Breeding and Genetics,
Swedish University of Agricultural Sciences, S-750 07 Uppsala, Sweden.

Standard polecats have dark brown or blackish fur, dark pigmentation around the eyes, and dark brown or black legs. Chocolate animals are lighter in colour than standards, with some brown guard hairs along the back, no pigmentation around the eyes, and dark brown legs. Dawn polecats have light brown or beige fur, no pigmentation around the eyes, and beige or brown legs. All types have a light-coloured underfur. Eight dawn x dawn mating resulted in 47 dawn, 3 chocolate, 3 standard and 14 albino offspring vs. 24, 18, 4 and 1 offspring of the 4 types for 7 dawn x chocolate matings, 17, 24, 41 and 0 for 11 dawn x standard matings, and 15, 24, 3 and 0 for 6 chocolate x chocolate matings. It is suggested that the inheritance of pelt colour in polecats may be determined by 2 genes with incomplete penetrance, but further investigations will be necessary to confirm this.

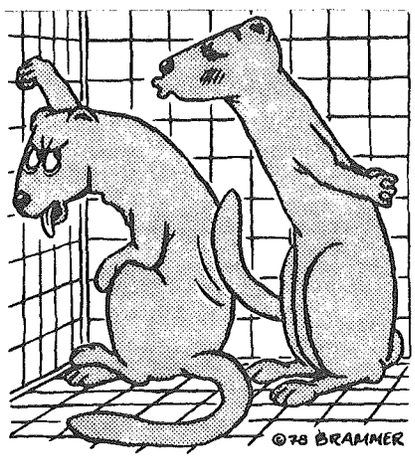
Norsk Pelsdyrblad, 55 (12) 1981, 504-505.
1 table. CAB-abstract.
In Norwegian.

THE BLACK MINK (MUSTELA VISON) A NATURAL MODEL OF IMMUNOLOGIC MALE INFERTILITY.

K.S.K. Tung, L. Ellis, C. Teuscher, A. Meng, J.C. Blaustein, S. Kohno, R. Howell, Dept. of Pathology, Univ. of New Mexico, Albuquerque, New Mexico 87131.

Breeding for fine black fur has generated a colony of mink wherein 20-30% of the males are infertile. Two clinical groups are distinguishable: one being infertile from the start (primary infertility), and the other infertile after one or more years of fertility (secondary infertility). Although the etiologyof primary infertility is unknown, the available date indicate that secondary infertility is associated with an autoimmune disease of the testis. Thus, male mink with secondary infertility have (a) higher prevalence and levels of anti-sperm antibody when compared with animals with primary infertility, and the antibody prevalence varies with fur color; (b) severe monocytis orchitis (47%) and/or aspermatogenesis (75%) with negative cultures for bacterial, fungal, mumps, or Coxsackie B viral organisms; (c) massive and extensive granular deposits of mink IgG and/or C3 (71%), typical of immune complexes, along the basal lamina of seminiferous tubules; (d) testes that when eluted with buffer or low pH yielded IgG that was 10-fold enriched in anti-sperm antibody activity as compared with serum IgG; and (e) no immunopathologic evidence of Aleutian mink disease. Although the sperm antigen-antibody complexes in the testis may be important as a pathogenetic mechanism of the testicular disease, there is no correlation between fluorescent anti-sperm antibody detection in the serum and the infertile state. The infertile black mink is a new model of infertility associated with naturally occurring autoimmune disease of the testis.

J. Exp.Med., Vol. 154, Oct. 1981, 1016-1032.
4 tables, 7 figs., 43 references. Authors' summary.



Are your problem of primary or secondary character ?

MALE INFERTILITY AND EXCESSIVE NEONATAL KIT LOSS IN FINELY-BRED DARK MINK (MUSTELA VISON).

Michael Davies Groesbeck, Utah State University, Dept. of Biology, UMC 53, Logan, Utah 84322, USA.

A series of investigations were undertaken to ascertain the causes(s) of excessive male infertility and neonatal kit mortality in finely-bred dark mink. Two mechanisms of testicular sperm transport were examined, testicular capsular contractions and seminiferous tubular contractions, and found to be the same in fertile and infertile dark mink. Spontaneous testicular capsular contractions were absent in both groups of mink. Seminiferous tubular contractions were present in both groups and this appears to be the primary means of sperm transport in the mink testis.

Epididymides from infertile animals were devoid of sperm and showed signs of epithelial degeneration (i.e. sperm granuloma). Histological sections of the testes demonstrated degeneration of the germinal epithelium in some animals and failure of the testis to mature in others. Two conditions were described: primary infertility in which mink were infertile in their first reproductive season and secondary infertility in which mink were fertile for one or more seasons and then were infertile a subsequent year. The etiology of the two conditions was found to differ. Secondary infertile animals exhibited a high incidence of autoimmune testicular orchitis. This condition was infrequent in the primary infertile animals.

Testicular and epididymal monamine oxidase, Phospholipase A2 and prostaglandin dehydrogenase activities were compared for fertile and infertile animals. Phospholipase A2 and monoamine oxidase activities were depressed in the testes of the infertile animals. Alpha-melanocyte-stimulating hormone stimulated phospholipase A2 activity in vitro while monamine oxidase activity was depressed. Monoamine oxidase activity was enhanced by beta-melanocyte-stimulating hormone in vitro.

Dissertation Abstracts International, Vol. 42, no. 09, March 1982.
Order no. DA8205306.
Only abstract available.

MANAGEMENT OF SECONDARY MALE INFERTILITY & NEONATAL MORTALITY IN DARK MINK

LeGrande C. Ellis, Bahig R. Nemetallah & Roland E. Howell
Utah State University, Dept. of Biology, UMC 53, Logan, Utah 84322.

Testes of opaline, pastel and dark mink manually palpated or obtained by castration for biochemical studies in October were found high in the inguinal fat pad and were covered with fatty tissue high in the inguinal fat pad. The testes were anchored in the fat pad by adhesions to the inguinal sac that prevented the testes from migrating into the scrotal area in late December so that testicular development could occur. The adhesions of the fat pad to the inguinal sac was attributed to overfeeding the animals to obtain mink with large pelts. Restricting feed intake of dark mink in January resulted in the disappearance of the inguinal fat pad so that the testes of the dark mink were able to migrate into the scrotal area for normal testicular development. When given free access to feed for eight days, the mink returned to the desired state of conditioning (fat distribution and size). An increase in histamine synthesis concomitant with a diminished metabolism of histamine was found to occur in dark mink in March when compared with opaline and pastel mink. The resulting increase in biogenic amine content was established as being responsible for alteration of the blood-testicular barrier so that autoimmune orchitis develops in dark mink causing secondary infertility (infertility after one or more years of normal fertility). Enhanced production of dark mink was obtained through a genetic breeding program so that highest productivity was obtained in dark mink with highest pelt quality - just the opposite to what is normally encountered with dark mink.

Fur Rancher Blue Book of Fur Farming 1982 edition, pp 67-70.
Authors' abstract.

FERTILITY OF STANDARD BLACK COLOURED HYBRID MINK.

(Plodovitost gibridnykh norok okraski standartnoi chernoi).

V.P. Leonova, Trudy Vses. Skokhozyaistvennyi, Inst. Zachnogo Obrazovaniva.

In our privious investigations the analysis of the combinative abilities of different crossings of the standard black minks, carried out by Spragne and Tatum method (1942) showed that the fertility is conditioned by the genetic differences, and the crossing to the two-line females with one-line males give the best results.

1. The fertility of the hybrid 2-line and 4-line standard black minks in the first year of reproduction does not possess superiority in relation to non-hybrid animals.

2. The 2-line minks of the second year of reproduction, according to the number of the registered cubs (for the basic female) exceeds the fertility of the minks of the first year of reproduction by 18.6.-19%, and by 19.8% for females of the older age.

3. The repetition of the value of the litter, according to the number of the registered cubs of the first year and second year of reproduction (during the preservation of the same combinations of females and males) constitutes 0.173 ± 0.06.

4. The percentage of repetition of the high fertility for females of two-years is over 60.0%, and for females of the older age - 57.14%.

Trudy Vses. Skokhozyaistvennyi, Inst. Zachnogo Obrazovaniva, 119:17-22, 1976.

Translated for the U.S. Dept. of Agric. and the Natl. Science Foundation Washington D.C. by the Al Ahram Ctr. for Scientific Translation, 1979. TT 78-59441.

7 pages, 2 tables.

Author's introduction and conclusion.

THE YOLK SAC OF THE AMERICAN MINK (MUSTELA VISON BR.).

(Zheltochnyi Meshok U Amerikanskoi Norki (Mustela Vison Br.).

V.M. Kolpovskii, Laboratory of Breeding of Fur-Bearing Animals, The All-Union Research Institute of Hunting and Fur-Farming named after Prof. B.M. Zhitkov, Kirov.

In embryogenesis of the American mink the yolk sac is found 25-24 days before delivery. Its morphological development is completed by the 16th day before delivery and exists as a provisory embryonic organ up to the end of the intrauterine life of mink cubs.

Arkh. Anat. Fistol. Embriol., Vol. 68, no.1, 1975. 57-62.
Translated for the Agric. Research Serv. U.S., Dept. of Agric. and Natl. Sci. Foundation, Washington, D.C. by ESDUCK (Franklin) Cairo, 1978.
3 figs., 15 references. Author's summary.

TRIALS TO REDUCE THE NUMBER OF MATINGS BY APPLICATION OF HCG IN MINK BREEDING.

S.J. Jarosz, B. Barabasz, Dept. of Fur Animal Husbandry, Agric. Univ., 30-059 Krakow, Al. Mickiewicza 24/28, Poland.

Experiment was carried out during 2 years on two mink farms. In the first year a total of 94 one-year-old females were used on Farm 1 and 52 on Farm 2, both groups being divided into experimental and control animals. Females in experimental groups were given on 5 March 25 i.u. of HCG each and at 7 and 8 days they were subjected to mating trials/ experimental and control females on Farm 1 - twice; on Farm 2, many times. In the second year a total of 168 females, 1-, or 2-year-old were used on both farms. All experimental females were given 40 i.u. of HCG each, including the 1-year-old on Farm 1 on 4, 5 and 6 March, on Farm 2: the 2-year-old on 3 and 4 March, while the 1-year-old on 5 and 6 March. Females in both age groups were subjected to mating trials at 7 and 8 days or at 2, 7 and 8 days after injections. In the first year of experiment on farm 1 mating rate, conception rate and litter size were in experimental group as follows: 100%, 69.4% and 5.5 kits; in the control

they were respectively: 100%, 61.5% and 5.2 kits. On Farm 2 the respective indices were in the experimental group: 90%, 83.3% and 4.6 kits; in the control they were respectively: 100%, 82.1% and 5.0 kits. In the second year of experiment on Farm 1 the best results were obtained after HCG given on 5 March. Mating rate, conception rate and litter size were in experimental group as follows: 93.7%, 93.7% and 6.4 kits, int the control they were respectively: 95.1%, 86.2% and 4.5 kits. On Farm 2 in 1-year-old females after HCG injections on 5 March mating rate, conception rate and litter size were as follows: 100%, 88.9% and 4.4 kits; in 1-year-old females after HCG injections on 3 March they were respectively: 84.2%, 73.7% and 4.3 kits; in the control they were respectively: 96.1%, 78.2% and 4.6 kits. Per one successful fertilization using mating trials at 7 and 8 days after injection of HCG fell 1.8 matings while in control 2.64 matings.

This project was supported by funds made available from the Maria Sklodowska-Curie Fund established by contributions of the United States and Polish Governments.

Paper presented in 44th Zjazd Naukowy PTZ, Szczecin, 13-15.IX.82.
3 tables, 5 references. Authors' summary.
In POLH. Abstracts in ENGL and RUSS.

THE ROLE OF PROLACTIN AND LH IN LUTEAL FUNCTION AND BLASTOCYST GROWTH IN MINK (MUSTELA VISON).

Lise Martinet, Cathrine Allais, D. Allain, Dept. de Physiologie animale, Inst. Natl. de la Recherche Agronomique, 78350 Jouy-en-Josas, France.

Data from matings of 779 pastel female at a mink farm and from matings of an unspecified number of pastel female at a research station were analysed in relation to date of mating between 3 and 20 March, single vs. double mating, and duration of the photoperiod. Pregnancy duration for female mated once between 3 and 10 March, between 11 and 15 March, or between 16 and 20 March averaged 55.3 plus or minus 1.1, 49.9 plus or minus 0.3 and 47.6 plus or minus 0.4 days respectively ($P < 0.001$);

corresponding values for female in the last 2 groups, mated twice with an interval of 7-10 days, were 48.5 plus or minus 0.4 and 45.3 plus or minus 0.3 days ($p<0.005$). For female subjected to natural daylength, 14-h light: 10-h darkness and 15-h light: 9-h darkness, pregnancy duration averaged 52.2 plus or minus 1.7, 46.4 plus or minus 0.6 and 45.1 plus or minus 0.2 days respectively, for single matings vs. 47.9 plus or minus 0.5, 43.0 plus or minus 0.5 and 43.0 plus or minus 0.2 days for double matings, the effects of photoperiod and mating frequency being significant. The termination of embryonic diapause was associated with an increase in luteal progesterone secretion, and luteal function was related to duration of photoperiod. The data indicate that prolacti n is the main luteotropic hormone before implantation. The reduction in pregnancy duration following double mating could be achieved by replacing the 2nd mating by an injection of HCG.

J. Reprod.Fert., Suppl. 19, 1981, 119-130.
1 table, 6 figs., 33 references. CAB-abstract.
In ENGL.

CULTURING OF EARLY MINK EMBRYOS IN VITRO.

G.G. Sekirina, A.I. Zhelezova, L.A. Konopistseva, USSR.

The first attempts to culture mink embryos were undertaken by Enders and Pearson, and then by Daniel. In both cases diapausing blastocysts were taken in the culture, and no development of them was obtained in vitro. In the present work we demonstrated the possibility of culturing preimplantation mink embryos in artificial medium in the period of the first divisions of cleavage.

A total of 94 embryos of the third to fifth days of pregnancy, at the stage of 2-10 cells, were explanted in vitro. In the culture a total of 84.4% of the explanted embryos developed successfully, and their development continued for 3-4 days. During this time the embryos reached the early morula or morula stage. Embryos explanted at all stages of

pregnancy (from the third to fifth days) developed equally successfully outside the organism.

The data obtained are evidence of the possibility of culturing early preimplantation mink embryos outside the maternal organism under the condition of selection of the corresponding media and conditions of culturing, which makes this object accesible to experimental embryological and genetic investigations and possibly for the solution of certain applied problems.

Inst. of Expt.Med., Academy of Medical Science of the USSR, Leningrad. Inst. of Cytology and Genetics, Siberian Branch of the Academy of Sciences of the USSR, Novosibirsk. (Presented by Academician D.K. Belyaev, Oct. 31, 1980).

Translated from Doklady Akademii Nauk SSSR, Vol. 259, No.4, pp 977-980, August 1981.
0012-4966/81/0708-0361$0.7.50 - 1982 Plenum Publ. Corporation.
2 tables, 1 fig., 4 references, Abstract by G. Jørgensen.

POTENTIAL POLYESTRICITY OF THE MINK (LUTREOLA LUTREOLA).

ПОТЕНЦИАЛЬНАЯ ПОЛИЭСТРИЧНОСТЬ ЕВРОПЕЙСКОЙ НОРКИ (*LUTREOLA LUTREOLA*)

N.N. Moshonkin, Astrakhan State Reservation, Astrakhan, USSR.

In five minks kept in captivity a repeated rut was stimulated and four of them gave second litters. The mink is not a strictly monoestric species, it is characterized by polyestricity under certain conditions. A female may produce two litters per year and this allows to utilize the most fully the reproductive potential of animals.

Zool. Zh., 60 (11) 1981 (Recd. 1982) 1731-1734.
1 table, 11 references. Author's summary.
In RUSS with summary in ENGL.

Just imagine - perhaps our grandchildren shall do the same 2 times a year !

EFFECT OF PASSIVE IMMUNIZATION AGAINST LH-RH ON GONADOTROPHIN SECRETION IN THE FERRET.

Barbara Gledhill, H.M. Fraser, B.T. Donovan, Dept. of Physiology, Inst. of Psychiatry, De Crespigny Park, Denmark Hill, London SE5 8AF, U.K.

Administration of ovine antiserum containing antibodies against synthetic LH-RH to spayed female ferrets caused an immediate fall in plasma LH concentration and by 2 h after injection circulating levels had declined by70-80%. A further decline of 50% was observed on Day 2, but by Day 4 a return to normal levels had begun and control values were regained on Day 6. In contrast, the fall in plasma FSH concentration was delayed, with a significant reduction being first observed on Day 2 and minimal values occurring on Day 4. Control values were regained by Day 7.

The results accord with the concept that a single hypothalamic releasing factor controls the tonic secretion of both pituitary hormones. However, the slow change in FSH secretion implies that the mechanism for FSH release may be more autonomous than that for LH.

J. Reprod. Fert. 1982, 64, 19-23.
1 table, 1 fig., 11 references. Authors' summary.

CYTOLOGY OF THE ENDOMETRIUM OF DELAYED AND EARLY IMPLANTATION WITH SPECIAL REFERENCE TO MICE AND MUSTELIDS.

S. Schlafke, A.C. Enders, R.L. Given, Dept. of Human Anatomy, Univ. California, School of Medicine, Davis, California 95616, USA.

Although it is apparent that the uterus is involved in the control of embryonic diapause, in no instance do we know the precise nature of that control. The most direct control would be through synthesis of proteins or other macromolecules by the uterus itself. Whereas luminal contents have been shown to vary significantly near the time of implan-

tation, neither the role of the luminal fluid constituents, nor the cellular origins of these molecules are fully known, nor have the mechanisms of storage and secretion of proteins in the endometrium been fully established. Cellular structures that may be indicative of functional activity include secretory granules or vesicles, increase or dilation of granular endoplasmic recticulum and increase in size, and associated vesicles of the golgi complex. Storage of glycogen or lipid appears more indicative of lowered activity. However, despite striking changes in these cytological characteristics in different animals during delay and early implantation, there is no single pattern during the delay period, and no predictable alteration in the peri-implantation period. In general, the structure of the uterus of an animal during delay resembles a modification of that of a closely related species that does not delay more than it resembles that of other species that do show delay.

J. Reprod. Fert., Suppl. 29, 1981, 135-141.
15 figs., 30 references. Authors' summary.
In ENGL.

ESTRUS AND OVULATION INDUCTION AND FERTILIZATION POSSIBILITIES IN POLAR VIXENS.

Jarosz, S.J., Barabasz, B., Dept. of Fur Animal Husbandry, Agric. Univ., 30-059 Krakow, Al. Mickiewicza 24/28, Poland.

Experiment involved two stages. The first in 1981 concerned estrus induction and observations of the growth of Graafian follicles and ovulation process while the second one referred to the possibilities of egg cell fertilization. During the first stage 30 females divided into 3 groups were given gonadotropin according to the following schedule: group I was given FSH/A.P.Godin/ in 3 doses of 12.5 i.u. every second day; group II: cristalling PMS /Folligon/ in 3 doses of 100 i.u. every second day; group III: oil PMS /Serogonadin/ in 1 dose of 200 i.u. After 8 days all the females were given 500 i.u. of HCG each. After 8-14 days laparoscopic examination of ovaries and internal reproductive organs was performed or the technique of laparotomy was used to this purpose.

The second stage in 1982 involved studies conducted on 30 1-year-old vixens divided into 6 groups. Females in group 1-3 were given oil PMS at single doses: group I - 100 i.u., group II - 200 i.u., group III - 300 i.u., group IV - a single dose of 250 i.u. of cristalline PMS, group V - 250 i.u. at two doses every second day/150 + 100 i.u./. Group VI was control. Females showeing estrus symptoms were subjected to mating trials.

During stage I of the experiment estrus symptoms were found in 8-14 days after the start of injections only in group II and III females, and in two females of group III also ovulation. During stage II only females in group III have shown estrus symptoms by 8-10 days and were mated. However, no ovulation or fertilization were stated. In females of I and II groups estrus occurred and they were mated up to 23-25 days following the start of injections. Ovulation and egg fertilization were stated in them, however, in the females of the remaining groups no symptoms of estrus were stated up to 31 March.

This project was supported by funds made available from the Maria Sklodowska-Cure Fund established by contributions of the United States and Polish Governments.

Paper presented in 44th Zjazd Naukowy PTZ, Szczecin, 13-15 IX 1982.
3 tables, 5 references. Authors' summary.
In POLH. Abstract in ENGL and RUSS.

FACTORS INFLUENCING BARENESS IN BLUE FOX FEMALES.

(Factory ovlivnujici jalovost u samic modrych pescu)

L. Stolc, M. Skrivan, F. Louda, R. Loucka, Dept. of cattle breeding and dairying, University of Agriculture, Prague - Suchdol., Czech.

Bareness in the females of blue fox is evaluated from the viewpoint of the influence of age, year, number of matings, data of mating, and breeding.

It follows from the evaluation of the influence of the year on the bareness

of the females, that after the establishment of the fox farm, increased attention should be paid to the stock in the third and fourth year when one-year-old females, coming from the own stock, are included in breeding.

A high bareness rate was found in females mated once - 31.35%, whereas in the females mated three times, only 16.67% were bare. Hence two or three matings should be used for a maximum number of the females, particularly those at an age of 1 year. The evaluation of the influence of the date of the beginning of heat and mating indicates that this period is very long; it is therefore necessary to start the preparation for heat and mating already in the postweaning period, after selecting the females to be used for further reproduction after weaning.

Sbornik Vysoke skoly zemedelske v Praze, fakulta agronomicka, rada B, 33, 1981. 139-149.
5 tables, 5 references. Authors' summary.
In CZEC. Summaries in RUSS and ENGL.

THE EFFECT OF THE LITTER SIZE ON THE WEIGHT OF THE YOUNG OF BLUE FOXES FROM DELIVERY TO 56 DAYS OF AGE.

(Vliv velikosti vrhu na hmotnost mladat modrych pescu od narozeni do 56 dnu stari).

L. Stolc, M. Skrivan, R. Loucka, Dept. of Cattle Breeding and Dairying, University of Agriculture, Prague - Suchdol, Czechoslovakia.

The basis for the investigation of the effect of the litter size on the weight of young blue foxes was individual weighing of the young at delivery, at 21, 42 and 56 days of age. Females which delivered five or more young none of which perished before reaching the age of 56 days were included in the group for evaluation. A total of 39 litters containing 309 offspring were evaluated. The evaluation of the effect of the litter size on the weight of the young revealed no significant differences at delivery, at 21 and 56 days of age. A significant effect was determined in the young at 42 days of age - offspring from larger litters have a lower weight. The same conclusions ensue from further investigations with an indifferent evaluation of the growth of males and females from delivery to the age of 56 days.

Sbornik Vysoke skoly zemedelske v Praze, fakulta agronomicka, rada B, 32, 1980, 99-108.
4 tables, 4 references. Authors' summary.
In CZEC. Summaries in RUSS and ENGL.

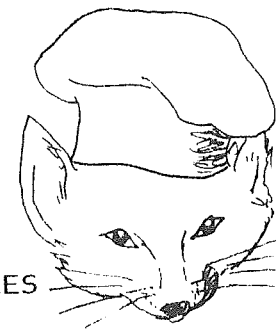
FINE STRUCTURE AND FSH BINDING OF SERTOLI CELLS IN THE BLUE FOX (ALOPEX LAGOPUS) IN DIFFERENT STAGES OF REPRODUCTIVE ACTIVITY.

Kjell Andersen, Anne Sundby, Vidar Hansson, Inst. of Reproductive Physiology and Pathology, Veterinary College of Norway, P.O. Box 8146 Dep., Oslo 1, Norway.

A clearly different Sertoli cell morphology was found in the immature blue fox and in the adults in and out of season. Immature cells had small, basally, located nuclei rich in peripheral heterochromatin, and few cytoplasmic organelles. Sertoli cells from adults in season had basally located, large, convoluted nuclei with homogenous nucleoplasma and prominent nucleoli. The basal and intermediate parts of the cytoplasm contained an extensively developed ER, numerous mitochondria, free ribosomes, lipid droplets and residual bodies, while the apical cytoplasm showed few distinct structures. In Sertoli cells from adults out of season the nuclei were dislocated towards the lumen, and apart from numerous dilated cisternae of ER, there were generally fewer organelles, but more glycogen particles. A marked rise in FSH binding was found towards the breeding season.

International Journ. of Andrology, 4, 1981, 570-581.
1 table, 7 figs., 29 references. Authors' summary.

From the FBA -Gazette.



Original Report.

COMPARISON OF PHYSIOLOGICAL REACTIONS OF POLAR BLUE FOXES FED FRESH OR DRY FEEDS.

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Summary.

The aim of the present experiment was comparing the content of haematological, biological and mineral elements in the blood of polar blue foxes fed with traditional fresh fodders or with complete dry feeds.

Dry feeds given in the period from weaning up to slaughtering did not yield any considerable changes in the content of heamatological and biochemical blood indices.

However, the experiment showed changeability of the level of mineral elements such as calcium, inorganic phosphorus, zinc, and copper in their blood. The animals fed with full-portion dry mixtures did not show any clinical changes in the health condition and in their productivity.

Limited amounts of fresh meat-and fish fodders for fur animals make us look for possibilities of replacing them with complete dry fodders /12, 13, 14, 15/.

Such feeds were used for minks and foxes. However, effect of such is different than the traditional way and it may have some influence on the physiological reactions of the animals /1, 2, 3/.

Hence, determining the influence of these dry complete feeds on some physiological indices of blood may be important for estimating usefulness of the new methods of feeding the foxes /4,5, 6, 8, 11/.

The aim of this investigation was to compare the haematological and bio-

logical indices in the blood of polar foxes /Alopex lagopus/ fed with dry complete feeds and those fed traditionally with fresh fodders.

Material and methods.

The experiments were carried out on young polar blue foxes in the period from weaning up to slaughtering in the Centre of Breeding Fur and Warrantable Animals "Las" in Skolimów.

The animals were divided on the basis of analogues into three groups, 12 animals in each group with an equal number of males and females.

The experimental design was as follow:
Group A - control group fed traditionally.
Group B - given 50% of fresh and 50% of dry fodder.
Group C - given 25% of fresh fodder and 75% of dry fodder.

The control fodder contained in average 32% of fresh meat products, 36% of fresh fish, 15% of corn products, 12% of green forage, 3.5% of fodder yeasts and 1.5% of potatoes.

The experimental dry complete feed contained 16 % of powdered white fish with 2% of NaCl, 9% of meat-and-bone meal, 8% of blood meal, 2% of dry skimmed milk, 20% of potatoe pulp (50% d.m.), 8% of soya bean, 15% of ground corn grain, 14% of ground wheat grain, 3% of yeast and 2% of condensed wheat starch.

To every kg of feed 4 g of mineral vitamin concentrate Polfamix L was added. Before giving, the dry feeds was mixed with 1.5 of water to obtain pasty constistence.

The dry mixed feed has been produced by Experimental Centre ZPP "Bacutil" in Macierzysz according to the formula worked out by the Centre "Las" in Skolimów. The animals were kept in separate cages and had permanent access to water. In the period of the experiment the foxes were given constant veterinary care.

Before taking the blood to analysis the animals were fasting for 24 hours,

then 20 ml of blood was taken from the foot vein. Whole blood was used to state the value of haematocrit, content of haemoglobin as wall as the number of erythrocytes and leucocytes. In the blood serum glucose was estimated by means of the o-toluidine method /9/, urea with the method of Conway /11/, cholesterol with the method of Ilka /10/, creatine with the method of Folin and Wu /7/, and total protein was estimated refratometrically /7/.

The content of mineral elements in the blood serum: Ca, Mg, Fe, Zn, and Cu was estimated by atomic absorption spectrophotometry. The content of inorganic P was estimated colorimetrically with the method of Fiske-Subbarov /9/.

Obtained results were described statistically and significance differences was estimated by means of Duncan's Test at $p \leq 0.05$. The results are given in tables in accordance with the SI System.

Results and Comments.

The values of haematological indices are given in Table 1. Table 2 gives the data stating the level of chosen biochemical indices. Table 3 illustrates the content of macro- and microelements in the blood serum.

Table 1. Haematological parameters.

Group	Haematocrit l/l		Haemoglobin mmol/l		Erythrocytes T/l		Leucocytes G/l	
	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD
A	0.518	0.01	8.86	0.8	9.6	1.9	8.9	2.6
B	0.522	0.02	9.30	0.9	9.3	2.0	9.3	2.1
C	0.514	0.02	9.05	0.8	9.5	1.7	9.4	1.9

The haematological indices show no considerable changes resulting from different way of feeding. Only the level of haemoglobin was slightly higher when animals were fed with dry mixed feeds, but differences were not significant. This observation is in some contradiction with our earlier experiments/14, 15/, where it has been proved that the animals fed with dry fodder revealed lower level of haemoglobin as compared with the control group.

Generally haematological indices were still in the limits of values stated in the blood of polar blue foxes /14,15/.

Similarly no changes were revealed in the level of biochemical indices in the blood. This fact would suggest that feeding polar blue foxes with dry feeds does not changes significantly the level of investigated indices.

Unlike in the above described results, the experiment revealed that the level of mineral elements in the blood of foxes was significantly different with the two groups of animals.

Table 2. Biochemical values in the foxes blood.

Group	Total protein g/l		Urea mmmol/l		Glucose mmol/l		Cholesterol mmol/l		Creatinine mmol/l	
	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD
A	62.0	7.4	5.60	0.13	7.90	0.11	4.15	0.12	327.4	17.2
B	64.0	8.2	5.80	0.10	8.35	0.10	4.10	0.15	332.6	14.1
C	61.0	9.8	5.72	0.14	8.47	0.09	4.17	0.11	329.1	19.3

Table 3. Contents of mineral elements.

Group	Ca mmol/l		P mmol/l		Mg µmol/l		Fe µmol/l		Zn µmol/l		Cu µmmol/l	
	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD
A	4.6^{a}	0.9	2.7^{b}	0.4	1.1	0.3	40.1^{a}	3.2	16.1^{a}	3.7	21.6^{b}	2.9
B	5.8^{b}	1.1	1.9^{a}	0.5	1.0	0.4	48.0^{b}	4.1	22.6^{b}	4.3	16.8^{a}	0.9
C	6.2^{b}	1.1	1.9^{a}	0.5	1.1	0.4	48.3^{b}	3.8	21.4^{b}	4.1	16.0^{a}	1.7

a, b, c for $p \leq 0.05$.

The level of calcium in both experimental groups was significantly higher in relation to the control group.

The situation was different with the level of inorganic phosphorus, where the values in the control group were higher. Some changes in the content of microelements in the blood serum were also noticed.

The highest content of iron and zinc stated in the experimental groups, while the level of copper was significantly higher in the control group.

These observations confirm the results of our earlier researchers /14, 15/. Hence, it may be concluded that feeding the animals with dry mixtures has important influence upon the mineral metabolism of the animals system.

The verinary observations which have been carried out make it possible to say that no symptoms revealing either deficiency or excess of mineral elements in the blood of experimental animals could be stated.

The production results data reveal that the quality of the fur-cover of the animals fed with complete dry mixtures was the same as the fur-cover of the control grup foxes.

In conclusion it may be stated that complete dry mixes feed show full usefulness in feeding polar blue foxes in the period from weaning up to obtaining full-maturity fur-cover.

Conclusions.

1. Use of complete dry feeds for polar blue foxes did not cause changing in the content of haematological and biological indices in blood. However some changes in the level of mineral elements were stated.
2. Animals fed with complete dry feeds did not show any clinical changes in their condition and in their productivity.

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Original Report.

THE INFLUENCE OF THE SPROT FISH ON MINK REPRODUCTION, WHEN BEING ADMINISTRATED DURING THE GESTATION PERIOD.

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The vitamin B1 deficiency remains a main problem for the industrial mink breeding and to provide a solid protection against this deficiency still represents an up to date problem. As it is known the secondary deficiency of this vitamin appears as a result of the mink feeding with different species of fish containing in their organism the thermolabile enzyme thiaminase.

As the reference material is generally poor in date referring to the ethiopathology of the vitamin B1 deficiency due to some species of fish, in different physiological periods, as the errors in feeding may be possible and the consequences could certainly be grave, we have been studying the sprot fish species (Spratus spratus phalericus) whose degree of influence is still little known. But it is known that this fish is rich in vitamin D.

Observations have been made on two experimental lots, 1 and 2 and a control lot, each of them having 182 standard mink females. The aim of these observations was to know exactly under which form appears the negativ effect that this fish has when administrated raw in the mink food during gestation, the percentage level in the ratio and the period until the deficiency appears, the anatomical and clinical troubles and the econimical losses due to all these.

The typical form of vitamin B1 deficiency characterized by neuromuscular troubles (the Chasteck disease) the economical losses observed by us are much less in comparison to the deficiency that affects the reproductive capacity of the mink.

The investigations that were made showed that in the physiological state of high solicitation (gestation period, lactation period the thiamine reserved which are generally reduced in the organism are consumed. If in this insufficiency state adds a secondary deficiency of the same kind,

the effect of the disease appears, with all the symptomatic aspect, consisting of: embryonal resorption, abnormal whelping, high mortality at gestant females, dead or unviable whelped kits, low prolificty and high sterility. Simultaneously but only in a few cases neuromuscular symptoms have been observed.

As a result of the gradual installation of the deficiency state during the latent blastocytar period as well as during the second period of the embryonal gestation, frequent mortalitites and embryonal resorption could be observed, which led to a higher percentage of sterile females in comparison to the control lot.

When examining the bodies, the maintenance state was generally bad, the mucous membranes were pale, the fur of the posterior part of the body was dirty with black coloured excrements. There were analysed 34 females until the whelping period, 7 of them having been found ungestant. In the uterus of the rest of the females were found dead or mumified foetuses in different periods of resorption, foetuses in course of being eliminated from the uterus, uterine tears and the presence of the foetuses in the abdominal cavity. The average of the dead foetuses per gestant female analysed was 5.18. In the present case the nonactivation of the vitamin B1 by the thiaminase from the sprot determined the diminution of the glycemia and the hepatic glycogen, and as a result the accumulation of the piruvic and cetoglutaric acids in the nervous tissue took place, and in the other tissues (liver, heart, uterus, muscles, etc.) was accumulated lactic acid due to the non-oxidation of the piruvic acid.

Thus, the uterine peristaltism being conditioned by the integrity of the contractile unities and by the presence of the distortion elements, it was troubled by the presence of the piruvic acid from the endometrial secretion, from the zigoembryotrof and from the embryonar tissue, all of them being elements lacking the capacity to degrade the piruvic acid. Other biochemical modifications which could explain the aspects found at the examination of the bodies were those which refer to the glycolize process, that is to say, under the conditions of a very tense muscular effort, but lasting only a short period of time, the production and accumulation of lactic acid led to the appearance of the rigidity, tiredness and especially the friability of the muscular uterine fibre. All these morphoclinically appeared by uterine tears and the extravasation of the uterine contents in the abcorminal cavity, distocies etc.

At the anatomopatological examination of the internal organs obvious modifications were observed in the liver, which was often argile yellow coloured and a little bit friabil, while the kidneys were rather atrophied and ligth red coloured. The spleen almost in all the cases had a superficial hypertrophy, being dark red coloured. The encephalou was a little larger and frequently presented hemorragical zones.

The experiment began on the 14th of March, that is to say the last period of covering at mink and lasted during the entire period of gestation. In the animals food was utilized a common fodder ratio of a mixt type (meat-fish), in the structure of which, by introducing raw sprot, we were interested in the gradually inhibitive action of the thiaminase on the vitamine B1. So the raw sprot fish administrated was of 5% at the1st lot and of 10% at the 2nd lot, while the yeasts were 4% at the 1st lot and 2% at the 2nd lot.

Table 1. The structure of the ratio utilized in the experiment (%).

The food		Control lot	Lot 1	Lot 2
Butchery waste		20	20	20
Fowl waste		36	38	40
Fish	raw sprot	-	5	10
	mackerel, scat, boiled sprot	20	15	10
Dry fodder materials		9	9	9
Other fodder materials		9	9	9
Yeasts (fodder ones, beer ones)		6	4	2
Total		100	100	100

At the control lot, as well as to complete the fish ratio at the experimental lots, resh scat (Trachurus trachurus capensis) and mackerel (Scomber scombrus) have been used and boiled sprot too.

The pre-covering period, intermittently, registered temperature values far mor under 0° C. In spite of all these the covering developed under good conditions and we registered a covering acceptance percentage of 94% at the lot 1, 96.7% at the lot 2, and 97.25% at the control lot.

Table 2. The influence of the feeding with sprot on the birt rate, fecundity, and prolificity.

Specification	Control lot	Lot 1	Lot 2
Covering acceptance (%) (mating)	95.25	93.96	96.70
Whelped females from number of females (%)	86.81	64.29	52.75
Whelped females from mated females (%)	89.97	68.42	54.55
No. of kits|mated female	4.71	3.28	2.23
No. of kits|whelped female	5.28	4.79	4.09

The first symptoms of the disease appeared 32 days after the raw sprot feeding had been introduced at the lot 2, and 36 days after at the lot 1. They began and then went on with the gestant females mortality, followed then by miscarriages, dystocies, and by dead or nonviable whelped kits, all of these leading finally to the diminution of the reproduction results, put into evidence by figure no. 1 and table no. 3.

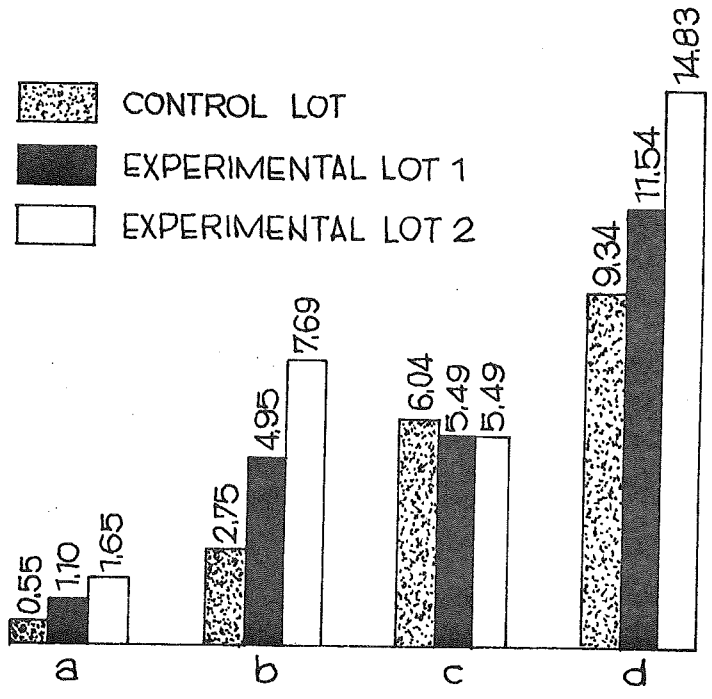

Fig. 1. The losses of the mink females in different stages of the reproduction (%), a.- gestation; b.- whelping; c.- lactation; d.- total reproduction period.

Table 3. The consequences of the raw sprot administration at the mink females during gestation (%).

Specification	Control lot	Lot 1	Lot 2
Miscarriaged females or with unviable kits	2.75	4.41	6.04
Hipo and agalactic females (feeble kits adopt.)	1.09	2.75	4.94
Females having whelped 1-2 kits	7.69	6.04	7.14
Females having whelped 3-6 kits	50.00	37.91	27.47
Females having whelped more than 7 kits	21.99	12.08	7.70
Sterile females	7.14	25.27	31.87
Females losses during the reproduction period	9.34	11.54	14.84
Total	100.00	100.00	100.00

The economic losses are far more considerable at the lot 1 and especially at the lot 2 during the gestation and the whelping period. (Fig. 1 a and 1 b) than at the control lot, because in this case the losses are localised at the descendants whose number is almost 4 times than that one of the mother females. During the lactation period the losses percentage apparently high is principally due to the lactation exhaustion, which is not concludent for the raw sprot feeding during the gestation period. The economic implications of this period are more reduced, being found only in the bad quality of the fur obtained from the females, because the orphan kits are safe by the adoption method.

At the control lots, the whelped kits with thiamine insufficiency presented debility and a weak viability. The kits mortality at whelping was of 3.94% at the lot 1, and of 5.07% at the lot 2, in comparison to only 3.25% at the control lot. The kits mortality, as well as the females one, during the reproduction periods following the experience ceasing is considered as non-concludent for the raw sprot feeding.

As it was to be expected, the reproductive capacity of the mink diminished in proportion to the diminishing of the vitamin B1 from the organism, due to its inactivation by the thiaminase. The miscarriages and the unviable whelped kits substantial by grew, the milk production of the females

was influenced and the prolificity was affected (Tables 2 and 3). The females with viable descendants substantially reduced, with 30 % at the lot 1 and respectively 47% at the lot 2, in comparison to the control lot.

An aspect which particularly draw our attention was that one concerning the miscarriages and the dystocies that appeared during the advanced gestation period and at the beginning of the whelping period. The ethyopatogeny of these miscarriages and dystocies represent the going on of the whole glycolise process, as a consequence of its interference with the thiaminase.

When dividing the whelping stage in 3 periods of 7 days each it was remarked that miscarriages and dystoccies appeared more frequently at the beginning of the whelping (the first period), as well as their substantial increasing from 3.16% at the control lot to 6.80% at lot no.1 and 11.46% at lot no. 2 (Table 4).

Table 4. The comparative evolution of the miscarriages in comparison to the whelping as a consequence of the raw sprot feeding (%).

Specificare	1st week (21-27 Apr.)	2nd week (28 Apr.-5 May)	3rd week (5-11 May)	Total whelping period
Control lot:				
Whelping	41.14	49.37	5.49	100.00
miscarr.	2.53	0.63	0	3.16
Lot 1:				
whelping	34.19	48.72	17.09	100.00
miscarr.	5.98	0.86	0	6.84
Lot 2:				
whelping	34.38	47.92	17.70	100.00
miscarr.	11.46	0	0	11.46

In order to determinate exactly how the processes went on during the first week, a comparsion was established between the daily miscarriages and whelpings at the beginning of the whelping period. (Fig. 2).

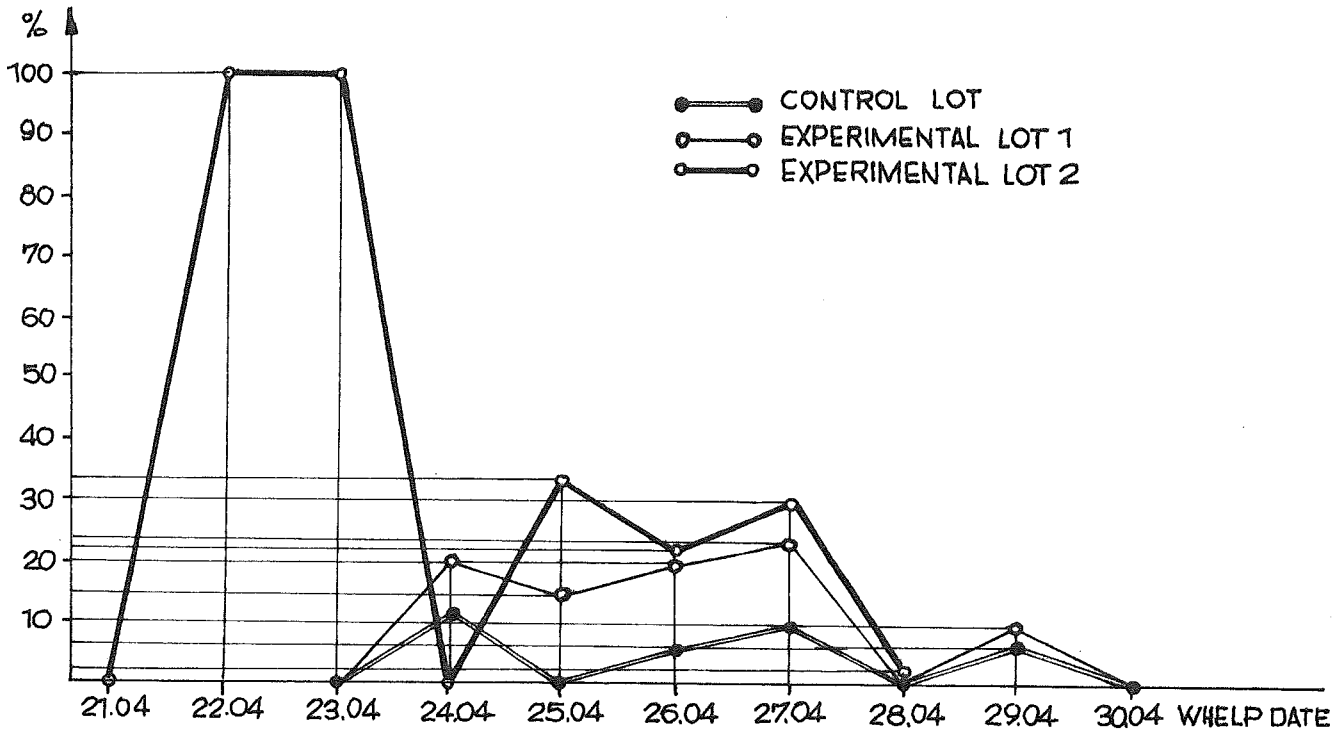

Fig. 2. The amount of miscarriages from the daily whelpings of the mink females.

It was relevant the fact that, at the lot 2, the great majority of the miscarriages were localised during the first whelping days. As time went on the miscarriages began to lower, but they were still twice or three times greater than at the control lot, the situating became stable only at the beginning of May. So the number of kits obtained (alive and viable) lowered to 67.3% at the lot 1 and to 47.1 at the lot 2 in comparison to the control lot.

So, through the inactivation of the vitamin B1 by the thiaminase from the sprot, as it was expected, appeated troubles at the lipides and glucides biosynthesis process, at the glucides metabolism and at some processes generating energy and of the acetilcolinic activity. The sinergic energy of the vitamin B1 deficiency with that one of the riboflavine, the ascorbic acid and of the pteroilglutaminic acids interfered and troubled the numerous enzymatic synthesis, affecting especially and generally the reproductive function.

Conclusions.

The registered losses quota in the mink reproduction as a result of the secondary deficiency in vitamin B1 is proportional to the quantity of sprot fish administrated in a raw state in the gestant females' food. Thus, the mink reproduction values suffered considerbale negative deviations due to the diminishing of the females percentage with viable descendants with 30% at the lot 1 and 47% at the lot 2 in comparison to the control lot and respectively, to the obvious decrease of the prolificity from 4.71 at the control lot, to 3.28 at the lot 1 and 2.23 at the lot 2. On the whole, the reproductive capacity diminished with 33% at the lot 1 and with 53% at the lot 2, in comparison to the control lot.

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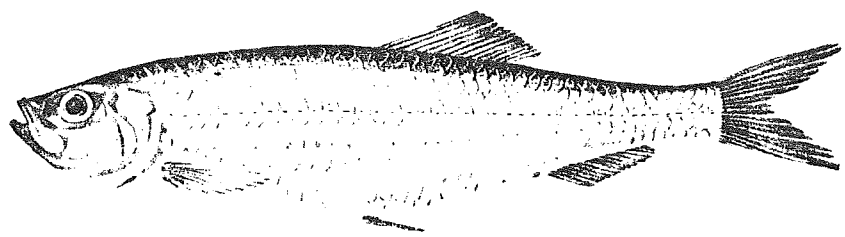

BRISLING,
Sprattus sprattus

Original report.

EFFECT OF DIETARY COPPER AND ZINC ON THE HAEMATOLOGY OF MALE PASTEL MINK KITS. A PILOT INVESTIGATION.

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The general interrelationship between copper, zinc, and iron has been described in a treatise by E.J. Underwood 1977.

In conventional mink diets the content and ratio between Cu, Zn, and Fe varies considerably. By screening ordinary Finnish feeds for these metals, J. Kangas found a prevailing ratio of Cu:Zn:Fe to be 1:5:25, whereas a similar investigation by the Danish Fur Breeders Association varied from 1:8:36 to 1:1:2 with maximum and minimum total contents of Cu=5-34 ppm, Zn=27-60 ppm, and Fe=75-203 ppm in the wet feed.

Both in Finland and Denmark anaemias, different unsolved nutritional discrepancies, diarrhoe and sudden death syndromes exists among mink. The mentioned conditions can naturally have a multitude of other causes than low or high total content of Cu, Zn, or Fe or unphysiological ratios of these in the feed. But on the other hand, in view of the known interrelationships and the big variation of the feed content of Cu, Zn, and Fe, it cannot be ruled out that deficiencies or intoxications occur as a result of e.g. careless mineral supplementation.

The present investigation was conducted in order to stress the existence of an interrelationship between Cu, Zn, and Fe in mink by supplementing large doses of Cu and Zn in different ratios with a constant Fe content in the feed.

Method.

56 normal plasmacytosis free male pastel mink kits were randomly assigned to 7 groups of 8 kits at 90 days after birth.

All groups were fed the basal diet ad libitum. (Table 1).

Six groups were fed a supplemental diet with either $ZnSO_4$ or $CuSO_4$ or

both at 150 and 300 ppm/kg wet feed.

Table 1. Composition of the diet.

	%
Cod offal	31.4
Sprat	25.0
Barley	12.8
Lard	2.7
Soy Oil	2.6
Potato protein	3.0
Skim milk powder	1.6
Blood meal	0.9
Vitamin/mineral mix *	5.0
Water	15.0
% of the digestible energy from:	
Protein	40.0
Fat	45.0
Carbohydrate	15.0
Digestible energy:	163 kcal/100 g

*)	mg/Mcal
Vitamin A	(I.U.) 10,000
Vitamin D	1,000
Vitamin E	50
Vitamin B 12	0.03
Vitamin B 1	20
Vitamin B 2	8
Pantothenic acid	5
Vitamin PP	7
Vitamin B 6	4
Folic acid	0.3
Choline	40
PABA	8
Iron	50

Atomic absorption spectrophotometry of the test diets revealed:

Group	Cu ppm	Zn ppm	Fe ppm wet feed
Control	8	25	88
Medium Cu	166	20	95
High Cu	320	19	92
Medium Zn	10	171	90
High Zn	10	330	91

Registration of the feed consumption and clinical supervision was done regularly. The animals were weighted 4 times between 90 days after birth and pelting. At pelting time the animals were anesthetized (Mebumal 10 mg/kg B.W. i.p.) and blood samples taken by cardial puncture.

Immediately after this the animals were euthanazised and subjected to gross pathoanatomical studies. Plasma samples were analyzed for Cu, Zn, and Fe by atomic absorption spectrophotometry (Perkin Elmer) without digestion.

Hæmoglobin was determined by the cyanomethaemoglobin method. Haematocrit by centrifuging heparin capillary tubes for 3 min at 13,000 r.p.m. Total protein by the Biuret reaction. ASAT and ALAT by determination of their respective endpoint reaction products (oxalacetate and pyruvate) with 2.4 dinitrophenylhydrazin by spectrophotometry. Alkaline Phosphatase by the hydrolysis of p-nitrophenylphosphate to p-nitrophenol, which is measured spectrophotometrically.

Analysis of variance and Duncan's new multiple range test were used to find differences among group means at different Cu Zn levels and combinations.

Results.

The results are shown in Table 2. The ratio of Cu:Zn:Fe in the blood plasma was calculated, but not subjected to statistics.

Four animals died from the high copper supplemented group (mortality = 50%).

The autopsy of these revealed fatty liver and kidney metamorphosis, liver chirrosis, icterus, haemolysis and wasting. Besides this, one animal from the high zinc and copper group showed similar alterations.

Diskussion.

Signs of Cu poisoning in the high Cu groups were seen at the autopsy at pelting resembling the finding in the spontaneous dead. The haematological values show a shift towards a normo-/microcytic hypocromic anemia, high total Cu, low Fe in blood plasma, low total protein, high ASAT and ALAT (Juokslahti et al.) all of which fit the concept of Cu poisoning (Underwood, Haywood). In contrast to this is the high plasma Zn which could be expected to be low as the plasma Fe due to competition for binding sites (Underwood). As haemolysis is prevailing and as the high ASAT and ALAT (Alk. Phosphatase) values indicate both muscular and

Table 2. Body weights, haemoglobin, haematocrit, MCHC, plasma copper, zinc, iron concentrations and their ration (Cu=1), total plasma protein, ASAT, ALAT and alkaline phosphatase.

	DIETARY TREATMENT						
	Copper (ppm)			Zinc (ppm)		Copper+Zinc (ppm)	
	Control	150	300	150	300	150	300
Body weight	1980^{a*}	1920^{a}	1575^{c}	1985^{a}	1900^{a}	1944^{a}	1808^{b}
(g) ±	135	131	128	142	147	146	150
Haemoglobin	17.5^{a}	18.0^{a}	13.1^{b}	17.6^{a}	16.1^{a}	17.9^{a}	17.3^{a}
g|dl ±	0.6	0.7	2.3	0.6	0.9	0.7	0.9
Haematocrit	45.0^{a}	46.0^{a}	36.0^{a}	45.4^{a}	44.8^{a}	45.9^{a}	42.3^{a}
(%) ±	1.5	1.6	5.1	1.7	1.3	2.0	3.0
MCHC	38.9^{a}	39.2^{a}	35.9^{b}	38.9^{a}	36.0^{b}	39.1^{a}	40.5^{a}
(%) ±	1.6	1.8	3.3	1.8	2.0	1.7	2.7
Plasma	0.9^{a}	1.1^{a}	3.5^{c}	1.0^{a}	0.9^{a}	1.1^{a}	1.7^{b}
Copper, (Mg|ml) ±	0.1	0.2	2.0	0.1	0.1	0.1	0.2
Zinc	1.4^{a}	2.1^{b}	2.6^{c}	1.6^{a}	1.8^{b}	1.4^{a}	2.5^{c}
(Mg|ml) ±	0.1	0.2	0.2	0.2	1.8	0.1	0.3
Iron	2.4^{a}	2.0^{a}	1.9^{b}	2.1^{a}	2.4^{a}	2.0^{a}	1.4^{b}
(Mg|ml) ±	0.2	0.2	0.2	0.2	0.2	0.3	0.9
Cu:Zn:Fe (Cu=1)	1:1.5:2.7	1:1.9:1.8	1:0.7:0.7	1:1.6:2.1	1:2.0:2.7	1:1.3:1.8	1:1.5:1.2
Total prot.	6.1^{a}	6.1^{a}	4.8^{b}	5.5^{a}	6.2^{a}	5.8^{a}	5.1^{b}
(g|dl) ±	0.7	0.8	1.2	0.6	0.8	0.7	1.0
ASAT	60.5^{a}	113.2^{c}	150.0^{c}	78.2^{b}	72.7^{a}	72.0^{a}	79.8^{b}
U|l ±	5.0	7.2	30.0	7.1	7.7	7.0	8.6
ALAT	52.3^{a}	51.0^{a}	165.0^{c}	63.2^{a}	71.8^{b}	53.0^{a}	80.3^{b}
U|l ±	5.8	6.1	45.0	7.0	7.0	8.0	8.1
Alk.Phosphatase	30.1	33.6	66.3	33.2	33.9	31.0	30.0
U|l ±	2.1^{a}	5.2^{a}	8.8^{b}	5.1^{a}	5.0^{a}	2.7^{a}	3.0^{a}

*) Means in a row followed by different letters (a, b, c) are significantly different at the 95% confidence level (Students t-test).

liver damages the high plasma Zn may be due to the cellular leakage. Besides the haemolysis, the low plasma Fe could result in the anaemia.

In the high Cu+Zn groups the Cu poisoning symptoms were less pronounced and the cellular degeneration smaller as judged by the enzyme values.

High Zn content in the feed does not alter any of the measured variables besides the total plasma Zn content. Clearly 300 ppm Zn/kg wet feed is not close to the toxic level of Zn (Straube). Compared to the control animals the Zn supplementation is not reflected in an altered activity of the Zn dependent enzyme alkaline phosphatase. In other words the basal Zn content of ca. 30 ppm/kg wet feed seems satisfactory for ensuring the measured activity of alkaline phosphatse (Adeniyi).

The present investigation clearly shows the strong interrelationship between the absorption or utilization of Cu and Zn, depending on the relative and total content in the feed. Surprisingly 300 ppm Cu/kg wet feed was highly toxic to the mink. Whether this is due to uptake facilitating (chelating) properties of the diet being rich in high digestible fish protein or just the unphysiological ratio of Cu:Zn:Fe in the feed future investigations will reveal. A recent study by Aulerich et al. on the effect of dietary Cu to mink reported of no toxic effect of a total content of approx. 220 ppm wet feed with about similar content of Zn and Fe. In view of the present results, caution in mineral supplementation to mink should be of highest priority.

Future investigations should emphazise on two main fields:

1) An epidemiological study of the incidence of anaemia (haemopoietic suppression) in relation to the total mineral content and ratio of especially, Cu, Zn, and Fe in the feed and in which chemical configuration these elements are present.

2) Basal physiological studies of the mineral (Cu, Zn & Fe) metabolism of the mink.

Literature.

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Straube, E.F. & N.B. Walden (1981). Zinc poisoning in ferrets (Mustela putoris furo). Laboratory Animals, 15, 45-47.

Underwood, E.J. (1977). Trace elements in human nutrition. Academic Press.

EVALUATION OF A VITAMIN AND MINERAL REPLACER FOR LIVER IN DIETS FOR MINK (MUSTELA VISON).

R.J. Belzile, Dept. de zootechnie, Pavillon Comtois, Université Laval, Quebec, Que G1K 7P4.

Mink were fed diets containing 10% fresh liver or 1% of a replacer formulated to provide the same amount of vitamins and trace minerals as liver. Compared with a liver-free diet, more growth was obtained among kits fed the replacer diet. But, compared to liver added to a breeder diet, the replacer did not support normal litter size.

Can. J. Anim. Sci. 62, 1245-1247, Dec. 1982.
2 tables, 5 references. Author's abstract.
In ENGL. Abstracts in ENGL and FREN.

FATS IN THE NUTRITION OF MINK AND TROUT WITH SPECIAL REFERENCE TO PLANT OILS ENRICHED WITH LECITHIN.

(Fette in der Ernährung von Nerzen und Forellen unter besonderer Berüchsichtigung von lecithin-angereicherten Pflanzenölen).

J. Hertrampf, EWM, 2 Hamburg 54, Lokstedter Steindamm 18, Fed. Rep. Ger.

The protein-sparing effect of fat in the diet of mink and trout is discussed with the aid of published data. The high cost of protein and the fact that commercial trout feeds have at least 40 percent crude protein, render the part substitution of fat economically attractive. For rainbow trout (Salmo Gairdneri) a diet with 35 percent protein was satisfactory provided it had 18 percent fat, which can be utilised as an energy source with very little wastage on conversion into body tissue. The best results are with vegetable oils, preferably polyunsaturated, e.g., linolenic acid. About the same conclusions apply to farmed mink, for which the lecithin content of the diet is also important for health. When phosphatide biosynthesis in the liver is interrupted, fat accumulates in the liver, but lecithin-enriched vegetable oils have given very satisfactory results in

numerous trials and have even led to increased fertility and higher pelt quality than with feeds based on lard. About the same considerations may apply to trout and one report suggests that lecithin enrichment of hard fats can give satisfactory results in trout diets.

Mühle + Mischfuttertechnik, 117, 34, 447-448, 1980.
1 fig., 6 tables, 9 references. CAB-abstract.
In GERM.

PRELIMINARY STUDIES ON THE UTILIZATION OF A LARGE AMOUNT OF OVERDUE COTTAGE CHEESE IN MINK FEEDING.

Jarosz, S.J., Barabasz, B., Dept. of Fur Animal Husbandry, Agricultural University, 30-059 Krakow, Al. Mickiewicza 24/28, Poland.

The aim of this study was to determine palatability, digestibility and protein conversion in rations containing 60 and 20% supplements of overdue cottage cheese withdrawn from consumption for people. Studies were conducted on young mink of standard strain during the period of intensive growth after weaning /July/ and in the time of their winter fur priming (October/. Palatability of diet was observed and digestibility coefficients as well as the levels of glucose and urea in the blood serum and of urea in the urine were determined. It was found that rations supplemented with curds /60%/ showed a tendency toward a faster decrease in acidity and revealed worse palatability compared to the control ration not containing curds. A substantial supplement of curds to the diet had no effect on hematocrit count, hemoglobin content and number of blood red cells, however, it did affect changes in the white cell picture through a decrease in the number of neutrophilic cells and an increase in the number of lymphocytes. It has resulted too in increased secretion of urea in the urine and elevation of digestibility coefficients.

Paper presented in 44th Zjazd Naukowy PTZ, Szczecin, 13-15.IX.82.
3 tables, 5 references. Authors' summary.
In POLH. Abstracts in ENGL and RUSS.

RESULTS FROM DIGESTIBILITY AND GROWTH TRIALS IN MINK, FED DIFFERENT FISH MEAL QUANTITITES AS EVALUATED BY BIOLOGICAL AND CHEMICAL QUALITY CRITERIAS.

(Resultater af fordøjeligheds- og vækstforsøg med forskellige fiskemelskvaliteter til mink sat i relation til biologiske- og kemiske kvalitetskriterier).

Gunnar Jørgensen, Heddie Mejborn, N. Glem-Hansen, Natl. Inst. of Animal Science, Fur Bearing Animals, Trollesminde, 48 H Roskildevej, DK 3400 Hilleroed, Denmark.

Ten different fish meal qualities derived from different raw products, qualities and processings were tested by digestibility and growth trials in mink.

Both the digestibility of protein and the growth rate in mink was found to be correlated to the different quality criterias. Vacuum dried fish meal, although having poor quality parameters, gave good trial results. Eight out of the ten meal lots were processed conventionally, and showed a strong correlation between titration index and the validity as mink feed. The titration index is influenced by the initial or pre-processing status of the fish meal, processing and the storing-conditions.

The true digestibility (sande fordøjelighed SF) of the protein as measured by the pH-stat method, should be high in order to give a satisfactory growth in mink kits. In combination the titration and the pH-stat could substitute the DBC and TVN determination of fish meal because of their relative independence towards process methods.

The present investigation stress the importance of high quality fish meal for mink feed. Evaluating the quality of fish meal for mink the following parameters are recommended: The content of crude protein, water, ash, crude fat, FFA, and pH-stat (SF) and the titration index.

Statens Husdyrbrugsforsøg 1983, Meddelelse no.s 463 & 464.
9 tables. Summary by Asbjørn Brandt.
In DANH.

CHEMICAL COMPOSITION, DIGESTIBILITY, AND UTILIZATION BY MINK OF BOILED AND PRESERVED WASTE FROM INSTITUTION KITCHENS.

(Kemisk sammensætning, fordøjelighed og anvendelighed til mink af kogte, konserverede madrester fra institutioner).

Gunnar Jørgensen, Natl. Res. Inst. of Animal Science, Fur Bearing Animals, Trollesminde, 48 H Roskildevej, DK 3400 Hilleroed, Denmark.

Approximately 9,000 t of waste from institution kitchens is produced annually in Denmark. By rational collection, treatment, and pressure cooking a relative constant feed can be obtained. Thus sterilized and preserved (Bi-Ensil) kitchen waste has been submitted to digestibility and growth trials in mink. As the protein, fat, and carbohydrate was digested by 75%, 93%, and 64%, respectively, and the palatability high, the feed can be concluded to be suited for mink.

Statens Husdyrbrugsforsøg, Meddelelse no. 465, 1983.
5 tables, 1 fig. Summary by Asbjørn Brandt.
In DANH.

CHEMICAL COMPOSITION, DIGESTIBILITY, AND UTILIZATION BY MINK OF FLUID BREWERS YEAST.

(Kemisk sammensætning, fordøjelighed og anvendelighed til mink af gærfløde).

Gunnar Jørgensen, Natl. Res. Inst. of Animal Science, Fur Bearing Animals, Trollesminde, 48 H Roskildevej, DK 3400 Hilleroed, Denmark.

In Denmark the annual production of fluid brewers yeast (byproducts from beer-breweries) is approximately 15,000 t, equivalent of 2,000 t dry matter of yeast.

As the nutritive value of yeast is high, the by-product was analyzed for nutrients and submitted to growth trial in mink kits. The results of the chemical analysis were analog to ordinary brewers yeast.

Submitting mink kits in the intensive growth period, to 6.7% fluid yeast in the feed, had an adverse effect on growth.

Despite the attractiveness of the product it is concluded that supplementation, at the present level of knowledge, should be done with caution.

Statens Husdyrbrugsforsøg, Meddelelse no. 466, 1983.
3 tables, 1 fig. Abstract by Asbjørn Brandt.
In DANH.

LEVELS OF ZINC, MANGANESE, AND COPPER IN BLOOD PLASMA, LIVER, HAIR, GONADS, AND ACCESSORY SEXUAL GLANDS OF COYPU MALES .

(Obsah zinku, manganu a medi v krevni plazme, jatrech, srsti, gonádách a prídatnych pohlavních zlázách nutrii).

P. Jelínek, J. Illek, P. Jagos, University of Agriculture, Brno, Zemedelska 1, 662 65 Brno, Czechoslovakia.

The objective of the study was to determine the contents of zinc, manganese, and copper in the blood plasma, liver, hair, gonads, and the accessory sexual glands of clinically tested healthy coypu males, Standard breed, aged 8 to 12 months and fed the summer feed rations. Individual microelements contained in the above biological materials were determined by the method of atomic absorption spectrophotometry, the apparatus used was ATOMSPEK (manufacturer: Hilger). The results may be summarized as follows: The average content of zinc detected in blood plasma was 2.31 mg/l, in liver 24.43 mg/kg, hair 337.90 mg/kg, testes 7.11 mg/kg, prostate 17.08 mg/kg, seminal vesicles 6.10 mg/kg, and Cowper's glands 21.00 mg/kg, all in fresh tissue. The average content of manganese detected in blood plasma was 0.02 ml/l, liver 1.17 mg/kg, hair 5.67 mg/kg, testes 0.25 mg/kg, prostate 0.29 mg/kg, seminal vesicles 0.17 mg/kg, and Cowper's glands 0.70 mg/kg, all in fresh tissue. The average content of copper detected in blood plasma was 1.08 mg/l, liver 2.98 mg/kg, hair 6.63 mg/kg, testes 0.69 mg/kg, prostate 2.45 mg/kg, seminal vesicles 0.99 mg/kg, and Cowper's glands 0.85 mg/kg, all in fresh tissue.

A positive correlation was established between the levels of zinc in hair and blood plasma where the calculated coefficient or correlation r=0.8570 was significant at P=0.01 and the rate og tightness in this relation was large. A negative, highly significant correlation was found for the levels of zinc in hair and liver at P=0.01 (r=-0.8373),
the rate of tightness also being large. No correlation at a level of significance was detected in the levels of zinc in blood plasma and liver, and the value of correlation coefficient (r=-0.3759) suggested but a moderate, negative tightness. Similarly, no correlation at a level of significance (r ≮ P=0.05) was traced between the manganese and copper concentrations with the combination relations given above.

Zivocisná Výroba, 17, 1982 (3), 223-232.
4 tables, 20 references. Authors' summary.
In CZEC. Subtitles and summary in ENGL, summaries in GERM and RUSS.

STERILIZATION OF FEED FOR FURFARMS (WITH REFERENCE TO TRICHINELLA AND AUJESZKY VIRUS).

Стерилизация кормов на звероводческих фермах

A.S. Bessonov, Uspenskii, A.V. Yutkin, L.A., Mel'nikova, D.N., Ivanov, V.I., Grishin, L.M., Litvinenko, I.I., USSR.

The laboratory experiments and field trials, dead rats, cats and piglets infected with T. spiralis and rabbit carcasses infected with Aujeszky's virus were homogenized and sterilized electrohydraulically. No changes were detected in the colour, odour, taste, biological properties and chemical composition of the meat. Mink fed on this meat yielded pelts of higher quality than mink fed boiled meat.

Veterinariya, Moscow, USSR, No. 10, 19-21, 1981.
Veterinarybulletin Vol. 52, no. 3573.
In RUSS. CAB-abstract.

TOXIC AND CARCINOGENIC EFFECTS OF DIMETHYLNITROSAMINE (DMNA) IN THE BLUE FOX (ALOPEX LAGOPUS).

Nils Koppang, Arne Helgebostad, Donald Armstrong, Hans Rimeslåtten,
The National Veterinary Institute, P.O. Box 8156, Dep., Oslo 1, Norway.

Single doses of DMNA from 8 to 15 mg/kg body weight (B.W.) were given in the feed, by stomach tube or by subcutaneous application to 37 foxes. The course and intensity of the disease was not influences by the application route, but was directly related to the amount of DMNA given per kg body weight, and caused hemorrhagic centrolobular liver necrosis and acute vessel changes especially in the hepatic vein system. The possibility of liver regeneration after a single DMNA exposure depends on the degree of damage in the hepatic vein system. Some animals can recover from the acute disease caused by DMNA. But if the hepatic vessel changes are enough pronounced, progressive changes occur in the hepatic vein system leading to liver cirrhosis.

The observation period of the foxes after a single exposure was from 13 to 380 days. LD50 should not be determined after a surviving time of 3 days but rather after 4 weeks. In our material LD50 was 10 mg DMNA/kg B.W.

In an experiment over a longer period of time 18 foxes divided into 3 groups were given 2 weekly doses of DMNA in food. They were treated with daily estimated doses of 1.0, 0.2 and 0.1 mg DMNA/kg B.W., respectively. The foxes in Groups 1 and 2 developed ascites, jaundice and liver failure after intake of 45-70 mg DMNA/kg B.W. The foxes in Group 1 treated with 1 mg DMNA/kg B.W. showed centrolobular hemorrhagic liver necrosis and productive vessel changes in the hepatic vein system. The second group given 0.2 mg DMNA/kg B.W. developed hemorrhagic centrolobular necrosis which healed with fibrosis leading to cirrhosis and chronic occlusion in many of the hepatic veins. In addition noduli of chondroid lamellae and foci of hematopoietic tissue and early stages of hemagiomatous liver tumors were found in the liver.

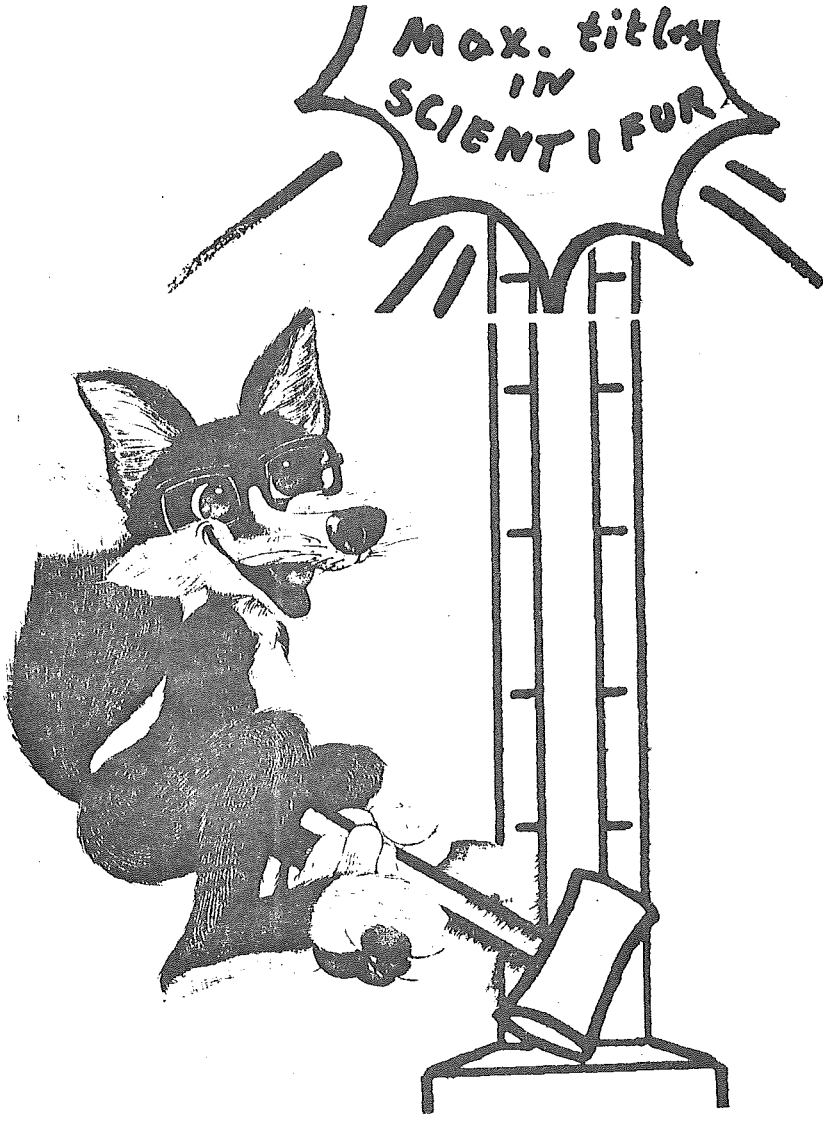
The group exposed with 0.1 mg DMNA/kg B.W./day did not develop hemorrhagic centrolobular liver necrosis, but thickening in the walls of the

hepatic veins. After more than 3 1/2 years of exposure multiple hemangiosarcomae were growing out from the changed vessel walls.

In an experiment over a shorter time period with daily exposure of DMNA doses in the feed below 0.15 mg/kg B.W., all the foxes were completely healthy and only some showed beginning changes in the hepatic vein walls.

Hematomae were often seen in foxes dying after a single DMNA dose. One fox treated with 0.1 mg DMNA/kg B.W. died of brain bleeding after 220 days of treatment. Chronic vessel changes were found in the heart and kidneys of the DMNA treated foxes. These results emphasize the fact that DMNA gives vessel changes of a more general nature.

Acta vet. scand. 1981, 22, 501-516.
10 figs., 6 tables, 22 references. Authors' abstract.
In ENGL. Abstracts in ENGL and NORG.



ENCEPHALITOZOONOSIS IN THE BLUE FOX. COMPARISON BETWEEN THE INDIA-INK IMMUNOREACTION AND THE INDIRECT FLUORESCENT ANTIBODY TEST IN DETECTING ENCEPHALITOZOON CUNICULI ANTIBODIES.

Svein Fredrik Mohn, National Veterinary Institute, P.O. Box 8156, Dep., Oslo 1, Norway.

Sera from 32 foxes sampled at intervals varying from 20 to 70 days after oral inoculation with E. cuniculi spores were tested by the india-ink immunoreaction (IIR) and the indirect fluorescent antibody test (IFAT). Using the IFAT, antibodies were detected at low levels in sera sampled on days 20 and 29 post inoculation, whereas the IIR failed to reveal antibodies in the same sera. In sera samples from day 35 until day 70 post inoculation, antibodies were detected by both tests, the IIR-titres reaching the magnitude of the IFAT-titres after about 50 days post inoculation.

In 14 sera sampled from foxes of at least 46 days of age and with signs of encephalitozoonosis, the tests gave almost identical results.

Comparing IIR- and IFAT-determined antibody titres using E. cuniculi antigens of blue fox and rabbit origin in the test, the antigens seemed to be closely related, supporting the suggestion that the isolates are strains of the same microsporidian species.

Acta vet. scand. 1982, 23, 99-106.
3 figs., 12 references. Author's abstract.
In ENGL with abstracts in ENGL and NORG.

ULTRASTRUCTURE OF RESTING AND ACTIVATED STORAGE POOL DEFICIENT PLATELETS FROM ANIMALS WITH THE CHÉDIAK-HAGASHI SYNDROME.

Kenneth M. Meyers, Gary Hopkins, Holm Holmsen, Karen Benson, David J. Prieur, Laboratory for Comparative Hemostasis and Thrombosis Research, College of Veterinary Medicine, Washington State University, Pullman, WA 99164.

The ultrastructure of platelets from Chédiak-Higashi (CH) and normal cattle, mink, and cats at rest was studied. Platelets from CH animals had a virtual absence of platelet dense granules. Alpha granules, amorphous membrane-surrounded structures, mitochondria, and microtubules of CH bovine platelets were similar in number and appearance to those in normal bovine platelets. Giant CH granules, present in other cells and considered diagnostic of the syndrome, could not be identified in platelets from CH animals. The open canalicular system and dense tubule system were not readily identifiable in resting bovine platelets. The ultrastructure of normal and CH cattle platelets was evaluated at various stages of ADP-induced aggregation. After platelets changes shape during the first phase of aggregation, the ultrastructural appearance of CH platelets was similar to that of normal platelets. The CH platelets composing the aggregates during irreversible aggregation did not appear as activated as did normal platelets, even though the aggregation tracings were similar. Normal and CH cattle platelets treated with thrombin appeared morphologically similar and were characterized by centrifugal movement of granules.

Am.J. Pathol. 1982, 106, 364-377.
1 table, 10 figs., 55 references. Authors' abstract.

ANTIGENIC RELATIONSHIPS BETWEEN CANINE PARVOVIRUS TYPE 2, FELINE PANLEUKOPENIA VIRUS AND MINK ENTERITIS VIRUS USING CONVENTIONAL ANTISERA AND MONOCLONAL ANTIBODIES.

C.R. Parrish, L.E. Carmichael, D.F. Antczak, James A. Baker Institute for Animal Health, New York State College of Veterinary Medicine, Cornell University, Ithaca, NY 14853, USA.

The antigenic relationships between three similar parvoviruses, canine parvovirus type 2 (CPV), feline panleukopenia virus (FPV) and mink enteritis virus (MVE) were investigated. Antisera against all 3 viruses and monoclonal antibodies (mAb) to CPV were prepared and the viruses compared using several serological methods. When conventional sera were used in the hemagglutination-inhibition and agar gel precipitin (AGP) tests there were no differences between the CPV viral isolated studied, but antigenic differences were revealed between the CPV isolates

and the FPV or MEV. Of 16 mAb produced against CPV, six reacted only with the CPV. The other 10 mAb reacted with all three parvoviruses. Additonally, an antigenic difference was detected by AGP tests between one FPV isolate and the other FPV and MEV isolates. Including both conventional sera and mAb to CPV in a single AGP test with the CPV, MEV and FPV antigens permitted the comparison of results obtained with the different antibodies. The results reported revealed antigenic differences between CPV and FPV or MEV that were most clearly defined using mAb.

Archives of Virology, 72, 267-278, 1982.
3 tables, 4 figs., 24 references. Authors' summary.

AUJESZKY'S DISEASE IN MINKS, POLAR FOXES AND SILVERY-BLACK FOXES.

S. Ja. Lyubashenko, A.F. Tyul'paniva, USSR.

1) Minks, polar foxes and silvery-black foxes of all ages are susceptible to Aujeszky's disease (pseudo-rabies).
2) The disease in these animals can appear at any time of the year. The course of the disease is acute. The most characteristic symptom is the edema of the lungs. In the foxes and polar foxes the disease can be accompanied in some cases with itching and scratching in the region of the head and muzzle. In other cases, these signs are absent or occur very rarely. In the minks, scratches are not observed.
3) The main source of infection carried into the farm was the meat feedstuff (pig subproducts, meat powder and meat scrapings), which were obtained from meat-factories.
4) With the objective of not allowing the infection into the animals farms, it is necessary to feed the meat-products to the animals only after boiling.
5) The urgent task is the study of the immunobiological properties of the viruses isolated from the agricultural animals and fur-bearing animals with the objective of developing the means of specific prophylaxis and therapy of this disease.

Translated from Russian by the John Crerar Library,No. TT 79-59025/h1.
7 pages. Authors' conclusion.

INVESTIGATIONS ON LOCAL INFECTIONS IN NUTRIAS.

(Untersuchungen über lokale Infektionen beim Nutria).

I. Ivascu, E. Steopan, C. Sähleanu, L. Matyas, Fakultatea de Medicina Veterinara, Str. Manastur 3, 3400 Cluj-Napoca, Rumanien.

A total of 138 coypus were treated for infected skin wounds. Wound dischrages from 67 of the animals were examined bacteriologically. Streptococci and various gram-negative bacteria predominated among the organisms isolated. Ot the antibiotics employed for topical treatment of the wounds, streptomycin was the most effective, followed by kanamycin, neomycin, and chloramphenicol.

Dtsch. tierärztl.Wschr. 89, 155-157. 1982.
3 tables, 1 fig., 5 references. CAB-abstract.
In GERM, summaries in ENGL and GERM.

UROLITHIASIS IN OTTERS (FAMILY MUSTELIDAE, SUBFAMILY LUTRINAE) AND OTHER SPECIES.

I.F. Keymer, G. Lewis, P.L. Don, M.A.F.F., Veterinary Investigation Centre, Government Buildings Jupiter Road Norwich, Norfolk NR6 6ST, Great Britain.

Renal calculi are described in otters (Lutra lutra and Amblonyx cinerea). Fifty per cent of 32 otters from 10 different sources were affected. In captive otters at least 66.7 per cent of affected animals showed calculi containing calcium salts, whereas the one affected free-living otter showed a single stone of ammonium urate. This contrasts with analyses of calculi from other species - mainly domesticated mammals - in which most calculi consisted predominantly of magnesium ammonium phosphate and relatively few contained calcium salts. Most of the calculi in otters were associated with renal damage but they were considered an important contributory cause of death in only 7 animals. Their presence appeared to be associated with excessively high dietary calcium and hypervitaminosis D. Hypervitaminosis A and other factors may also have been involved.

Erkrankungen der Zootiere. Verhandlungsbericht des XXIII. Internat. symposium über die erkrankungen der Zootiere, 24-28 Juni, 1981, Halle/ Saale (Edited by R. Ippen and H.-D. Schroder) pp 391-401, 1981.

COMMUNICATION [78]

Book Review.

PHYSIOLOGICAL STATE OF FUR-BEARING ANIMALS AND THE WAYS OF ITS REGULATION.

by prof. V.A. Berestov.

The book, which is written in Russian, contains 13 chapters in 177 pages, are presented by the Editor.

ФИЗИОЛОГИЧЕСКОЕ СОСТОЯНИЕ
ПУШНЫХ ЗВЕРЕЙ
И ПУТИ ЕГО РЕГУЛЯЦИИ

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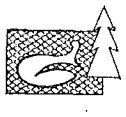

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ПЕТРОЗАВОДСК 1982

ФИЗИОЛОГИЧЕСКОЕ СОСТОЯНИЕ
ПУШНЫХ ЗВЕРЕЙ
И ПУТИ ЕГО РЕГУЛЯЦИИ

Печатается по решению Ученого совета
Института биологии Карельского филиала АН СССР

Редактор Г. А. Виноградова
Технический редактор Г. В. Козлова
Корректоры И. В. Ремшу, Т. З. Кайдалова

Сдано в набор 14.05.82. Подписано к печати 22.12.82. Е-04659. Формат 60×84¹/₁₆. Бумага типографская № 2. Гарнитура литературная. Печать высокая. Усл. печ. л. 10,2. Уч.-изд. л. 10,5. Изд. № 18. Тираж 1000 экз. Заказ 1948. Цена 1 р. 60 к.

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INVESTIGATIONS ON LOCAL INFECTIONS IN NUTRIAS.

(Untersuchungen über lokale Infektionen beim Nutria).

I. Ivascu, E. Steopan, C. Sähleanu, L. Matyas, Fakultatea de Medicina Veterinara, Str. Manastur 3, 3400 Cluj-Napoca, Rumanien.

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Dtsch. tierärztl.Wschr. 89, 155-157. 1982.
3 tables, 1 fig., 5 references. CAB-abstract.
In GERM, summaries in ENGL and GERM.

UROLITHIASIS IN OTTERS (FAMILY MUSTELIDAE, SUBFAMILY LUTRINAE) AND OTHER SPECIES.

I.F. Keymer, G. Lewis, P.L. Don, M.A.F.F., Veterinary Investigation Centre, Government Buildings Jupiter Road Norwich, Norfolk NR6 6ST, Great Britain.

Renal calculi are described in otters (Lutra lutra and Amblonyx cinerea). Fifty per cent of 32 otters from 10 different sources were affected. In captive otters at least 66.7 per cent of affected animals showed calculi containing calcium salts, whereas the one affected free-living otter showed a single stone of ammonium urate. This contrasts with analyses of calculi from other species - mainly domesticated mammals - in which most calculi consisted predominantly of magnesium ammonium phosphate and relatively few contained calcium salts. Most of the calculi in otters were associated with renal damage but they were considered an important contributory cause of death in only 7 animals. Their presence appeared to be associated with excessively high dietary calcium and hypervitaminosis D. Hypervitaminosis A and other factors may also have been involved.

Erkrankungen der Zootiere. Verhandlungsbericht des XXIII. Internat. symposium über die erkrankungen der Zootiere, 24-28 Juni, 1981, Halle/ Saale (Edited by R. Ippen and H.-D. Schroder) pp 391-401, 1981.

COMMUNICATION [78]

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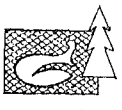

Дорогому
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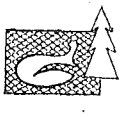

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Introduction.

The collected articles presented to the reader, comprise a number of communications pertinent to the projects completed.

Physiological immunity, in particular the natural resistance mechanisms of an organism (cellular factors - phagocytosis and humoral- complement, lysozyme, beta-lysins, properdin and others) was extensively investigated. Data were obtained on the formation of these systems in the periods of early and late ontogenesis, on seasonal changes in activity and specific differences observed distinctly between minks and polar foxes.

Fundamental studies on the enzymatic state of minks and polar foxes were conducted. Age dynamics of activity was found to reflect the metabolic level intrinsic to these immature born animals during the development and formation of their morphological and functional systems. In adult fur-bearing animals, the dynamics of serum enzyme activity has seasonal cycling closely connected with annual metabolic rearrangements, periods of reproduction and shedding of hair. Mink and polar foxes differ in the absolute values of enzymatic activity. In this manner the ecological specialization of the species is manifest on the enzymatic system level.

Enzymatic-immunological investigations enable us to get an idea of the normal health of fur-bearing animals and to estimate the confidence limits for the variations of these values in healthy minks and polar foxes of different ages and in different seasons. They proved to be good tests for assessing the state of animal health in industrial complexes. Numerous examples show high sensitivity of the enzymatic-immunological tests to any unfavourable effects; thedegree of their deviation beyond the confidence limits was elucidated for different forms of pathology: noncontagious (anaemia, dystrophic states, fatty hepatosis), contagious (virous plasmocytosis of minks, pasteurellosis, pseudominosis, enterotoxemia), invasional (toxascaridosis, diphyllobothriasis) diseases. This incontroversible evidence proves that enzymatic-immunological tests may be used as criteria for assessing the physiological state of a stock as a whole and for characterizing some individual features of the animals, in particular their resistance to injurious factors.

In basic works, the mineral composition of fur-bearing animal hair was determined. Hair is often used to indicate the state of an organism and in particular its provision with macro- and microelements. This is especially important for cage-bred fur-bearing animals whose pubescence quality is the main criterion for assessing their breeding efficiency. In this connection we have determined their breeding efficiency. In this connection we have determined the mineral composition of the hair in standard minks and veiled polar foxes and revealed the effect of different factors (species, type, animal sex, season) on the calcium, magnesium, zink, copper, iron content of their hair. Characteristics of macro- and microelement contentration were studied in the period of "infantile" pubescence formation. We used "whitedowning" as an example of the defect to show that microelements such as calcium and magnesium paly a certain role in hair pigmentation. Thus, data obtained will help to disclose the reasons for some diseases accompanied by different fur defects.

Biostimulators of a vegetative origin (eleutherocock, shizandra and others) are gaining grounds in medicine and veterinary science; aspen bark and needles are rich in bioactive substances. We tried to elucidate the effect of some preparations produced by chemical processing of bark, i.e., chlorophyllous-carotin paste, provitaminous concentrate, pigment-vitaminous concentrate and aspen bark vitaminous concentrate, on minks and rabbits. A positive effect of coniferous needle preparations on the organism of the mink and that of vitaminous concentrate on a rabbit organism were found to stimulate the functioning of the hamopoientic organs and growth and to improve fur quality.

Furthermore, high therapeutic efficiency of iron preparations produced on the chlorophyll basis, was found in the case of iron deficiency anaemia of fur-bering animals.

Studies conducted to reveal the effect of some oceanic fish (capelin, snipe) by-products on a fur-bearing animal organism were of applied character. They showed the possibility of using the byproducts of fish species enumerated in fur farming. Optimal quantities to be fed in different biological periods and the principles of their use in feeding with regard to negative factors present in some fish (thiaminase, trymethylaminoxide and others) were determined.

Numerous investigations were conducted to elucidate the effect of new breeding conditions (in the closed type of shade) on the physiological state and economically useful characteristics of minks.

Helmithoses of fur-bearing animals (diphyllobothriasis, toxascaridosis, coccidiosis) were studied. The number, distribution and developmental characteristics of toxascarids and diphyllobothrids, species composition of coccids were revealed in the animals of Karelia. The invasional effect on some aspects of metabolism and resistance was investigated. The efficiency of certain antihelminthics and disinfectants was revealed in the case of toxascaridosis of polar foxes.

the possibility of stress states ("transport", "separate") developing in animals was confirmed and the need for their prophylaxis by chemical therapeutic means (aminazine, mebicar) was emphasized.

The authors believe that the materials presented will be useful for both scientists and fur-farmers.

ABSTRACTS.

PHYSIOLOGICAL BASES FOR NONSPECIFIC IMMUNITY OF FUR-BEARING ANIMALS.

Berestov, V.A., Malinina, G.M., Uzenbaeva, L.B. In: Physiological state of fur-bearing animals and the ways of its regulation, Petrozavodsk, Karelian Branch of the USSR Academy of Sciences, 1982, p. 6-26, 36 ref.

Materials on the age and seasonal aspects of cellular and humoral factors of nonspecific immunity in minks of different genotypes and in polar foxes are presented.

The activity of the factors studied was found to change with the age of the animals and with season. The values of the activity have genotypical and specific differences. The age aspects of the confidence limits of the activity of the factors studied is discussed.

PRINCIPLES FOR DIAGNOSTIC ENZYMOLOGY AND THEIR USE IN FUR FARMING.

Kozhevnikova, L.K. In: Physiological state of fur-bearing animals and the ways of its regulation. Petrozavodsk, Karelian Branch of the USSR Academy of Sciences, 1982, p. 27-43, 7 ill., 45 ref.

The main provisions in diagnosis are discussed, and the reasons for serum hyperfermentemia are revealed. The possibility of using enzymological methods in industrial fur farming to assess the state of health of fur-bearing animals was shown. The analysis of enzymatic blood status in minks in the case of spontaneous anaemia, Aleutian disease, fatty hepathosis was given as an example.

THE EFFECT OF DIFFERENT FEEDING LEVEL ON THE PHYSIOLOGICAL STATE OF FUR-BEARING ANIMALS.

Petrova, G.G. In: Physiological state of fur-bearing animals and the ways of its regulation. Petrozavodsk, Karelian Branch of the USSR Academy of Sciences, 1982, p. 44-54, 26 ref.

The article focuses on the main results of investigations conducted by the laboratory of fur-bearing animal physiology studying the effect of the ration containing by-products of the fish family Osmeridae on the mink organism. The possibility of their feeding in certain doses was observed. The materials are presented on studying the deposition of vitamins in an organism whose determination is one of the important mthods for controlling the vitaminous full value of the ration.

MICROCLIMATIC CHARACTERISTICS IN THE CLOSED TYPE OF SHADE AND ITS EFFECT ON THE REPRODUCTIVE FUNCTION OF MINKS.

Tyutyunnik, N.N. In: Physiological state of fur-bearing animals and the ways of its regulations. Petrozavodsk, Karelian Branch of the USSR Academy of Sciences, 1982, p. 54-67, 10 ill.

Investigations were conducted for three years to study the physiological state of minks bred in the experimental closed type of shade built on the pedigree fur farm "Kondopozhsky", Karelian USSR. The present article

gives the results of the reproduction of minks bred in the closed shade for 4-14 months and the microclimatic characteristics of the room.

THE EFFECT OF BIOLOGICALLY ACTIVE SUBSTANCES FROM TREE GREEN ON THE PHYSIOLOGICAL STATE AND PRODUCTIVITY OF MINKS AND RABBITS.

Izotova, S.P. In: Physiological state of fur-bearing animals and the ways of its regulation. Petrozavodsk, Karelian Branch of the USSR Academy of Sciences, 1982, p. 67-89, 7 ill., 30 ref.

The article summarized the materials of long-term studies on the effect of chlorophyllous-carotin paste, pigment-vitaminous concentrate on the physiological state and the productivity of minks and rabbits. The results of investigations show the stimulating effect of biopreparations on an organism and the possibilities of their use as an additional reserve to increase the productivity of the animals.

THE EFFECT OF AGE, SEX AND SEASON ON THE LEVEL OF SERUM ENZYME ACTIVITY IN POLAR FOXES.

Ostashkova, V.V. In: Physiological state of fur-bearing animals and the ways of its regulation. Petrozavodsk, Karelian Branch of the USSR Academy of Sciences, 1982, p. 89-108, 4 ill., 59 ref.

The article shows the results of studies on age, sexual and seasonal changes in serum enzyme activity (LDH and its multiple molecolar form AsAT, AlAT, CE, AP) in polar foxes bred in cages. The analysis of the changes in the enzymes is performed against biological characteristics of the species. The elucidated confidence limits of enzyme activity may be used as diagnostic and prognostic tests in industrial fur farming and also in economical-physiological studies on a wild population of the polar fox.

ON THE PROBLEM OF PROTEIN DIGESTION IN THE GASTRO-INTESTINAL TRACT OF FUR-BEARING ANIMALS.

Oleinik v.M. In: Physiological state of fur-bearing animals and the ways of its regulation. Petrozavodsk, Karelian Branch of the USSR Academy of Sciences, 1982, p. 117-126, 36. ref.

In this article the results of studies on proteolytic activity in the gastro-intestinal tract of minks and polar foxes bred in cages are discussed. The proteolytic activity in the chyme, the mucose of the stomach and small intestine and in the pancreatic gland are studied. Two-month-old minks were found to have large amount of proteolytic enzymes in all the studied sections of the gastro-intestinal tract. Proteolytic activity increases with age especially in the proximal sections of the digestive tract, that seems to enable the animals to utilize definite feed more completely.

STUDIES ON THE EFFICIENCY OF SOME ANTIHELMINTHICS AND DISINFECTANTS IN THE CASE OF POLAR FOX TOXASCARIDOSIS.

Anikieva L.V., Anikanova V.S. In: Physiological state of fur-bearing animals and the ways of its regulation. Petrozavodsk, Karelian Branch of the USSR Academy of Sciences, 1982, p. 127-134, 3 ill., 7 ref.

The results presented were achieved in the studies on the efficiency of two antihelmith preparations: widely used piperasineadipinate and nilverm, new for Karelian fur farms and a number of disinfectants (chemical and physical) in the case of toxascaridosis of polar foxes.

STUDIES ON COCCIDS IN FUR-BEARING ANIMALS OF KARELIA.

Anikanova V.S., Anikieva L.V. In: Physiological state of fur-bearing animals and the ways of its regulation. Petrozavodsk, Karelian Branch of the USSR Academy of Sciences, 1982, p.134-139, 11 ref.

The degree of animal infection was determined on some fur farms. Interannual and seasonal variations of the extensivity of infection were found. The main factors promoting the invasion are discussed.

THE EFFECT OF MEBICAR ON THE ORGANISM OF INTACT AND STRESSED MINKS.

Berestov V.A., Zimakova I.E., Hozhevnikova L.K., Meldo H.I., Oleinik V.M., Ostashkova V.V. In: Physiological state of fur-bearing animals and the ways of its regulation. Petrozavodsk, Karelian Branch of the USSR Academy of Sciences, 1982, p. 139-156, 42 ref.

The effect of a new antistress preparation, mebicar, on the organism of minks was studied. Mebicar was not found to change the circadian rhythms of serum enzyme activity and concentration of the total corticosteroid content of blood plasma. In stressed animals, mebicar decreases the corticosteroid content without affecting the dynamics of enzyme activity. The effect of mebicar on the absolute value of enzyme activity is the same in intact and stressed minks. It tends to suppress LDH, AsAT, CE and to stimulate AP and AlAT. Taking into account the stress preventing affect of mebicar, its application at a dose of 0.25 g/kg of a fresh mass i desirable during the separation of young animals and the transportation of pedigree mink stock.

Book review.

I U C N PUBLICATION NEW SERIES ISBN 2-88032-200-6

OTTERS

Proceedings of the First Working Meeting of the Otter Specialist Group: Sponsored by the World Wildlife Fund (International) and Organized with the Permission of the Survival Service Commission IUCN.

Paramaribo, Suriname

27-29 March, 1977

International Union for Conservation of Nature and Natural Resources

1110 - Morges, Switzerland

Compiled and Edited by Nicole Duplaix, Chairman

1978

The International Union for Conservation of Nature and Natural Resources (IUCN) was founded in 1948, and has its headquarters in Morges, Switzerland; it is an independent international body whose membership comprises states, irrespective of their political and social systems, government departments, and private institutions as well as international organizations. It represents those who are concerned at man's modification of the natural environment through the rapidity of urban and industrial development and the excessive exploitation of the earth's natural resources, upon which rest the foundations of his survival. IUCN's main purpose is to promote or support action which will ensure the perpetuation of wild nature and natural resources on a world-wide basis, not only for their intrinsic cultural or scientific values but also for the long-term economic and social welfare of mankind.

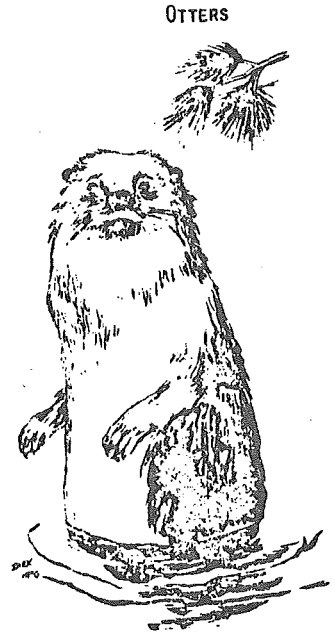
This objective can be achieved through active conservation programmes for the wise use of natural resources in areas where the flora and fauna are of particular importance and where the landscape is especially beautiful or striking, or of historical, cultural or scientific significance. IUCN believes that its aims can be achieved most effectively by international effort in cooperation with other international agencies such as UNESCO and FAO.

The World Wildlife Fund (WWF) is an international charitable foundation for saving the world's wildlife and wild places. It was established in 1961 under Swiss law, with headquarters at present in the vicinity of and eventually to be shared jointly with those of IUCN. Its aim is to support the conservation of nature in all its forms (landscape, soil, water, flora and fauna) by raising funds and allocating them to projects, by publicity and by education of the general public and young people in particular. For all these activities it takes scientific and technical advice from IUCN.

Although WWF may occasionally conduct its own field operations, it tries as much as possible to work through competent specialists or local organizations.

Among WWF projects financial support for IUCN and for the International Council for Bird Preservation (ICBP) have highest priority, in order to enable these bodies to build up the vital scientific and technical basis for world conservation and specific projects. Other projects cover a very wide range from education, ecological studies and surveys, to the establishment and management of areas as national parks and reserves and emergency programmes for the safeguarding of animal and plant species threatened with extinction.

WWF fund-raising and publicity activities are mainly carried out by National Appeals in a number of countries, and its international governing body is made up of prominent personalities in many fields



OTTERS

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LETTERS TO THE EDITOR

PURDUE UNIVERSITY ANIMAL DISEASE DIAGNOSTIC LABORATORY

March 18, 1983

Gunnar Jørgensen, Editor
Scientifur
48 H Roskildevej
DK-3400 Hilleroed
Denmark

Dear Dr. Jørgensen:

Enclosed please find copies of a recent article by myself and John Gorham on "Pseudomonas Pneumonia of mink." I didn't know if you had seen it yet. The article is a general over-view of the disease.

On another subject, in the past few years, we have seen a number of cases of excessive neonatal death loss in mink. The mink kits die within 48 hours and most appear not to have nursed. In some of these cases, we have examined female mink and they appear to be in good health and producing adequate milk. Some of these cases are weather-related (excessively hot weather at whelping) and some appear to be management related (moving females to new buildings right before whelping and other handling practices). A number of the cases appear to be related to particular diets, such as a particular cereal mix, but we have not been able to definitely prove this association and we do not have a firm idea of exactly which nutrient or nutrients are involved.

I would appreciate it greatly if you could direct me to any recent work on neonatal death loss in mink. Thank you.

Can any help Dr. Long? g.j.

Sincerely,

Gerald G. Long, D.V.M., Ph.D.

GL/jh

Pseudomonas pneumonia of mink

Gerald G. Long DVM, PhD, and John R. Gorham, DVM, PhD

Purdue University, West Lafayette, Indiana 47907

Prague, March 3, 1983

and.
Jean Rougeot
3rd. International
Scientific Congress

Dr. Gunnar Jorgensen
"Scientifur"
48 H Roskildevej
DK - 3400 Hilleroed
D e n m a r k

Dear Sir,

I am taking the liberty of sending you for publication in your "Scientifur" my two recent papers that were published in the scientific journal of our Agricultural University.
I should be also very much grateful to you for some more detailed information on the Third International Scientific Congress in Fur Animal Production, as weal as for a registration form.
Thanking you in advance, I remain,

Sincerely yours,

Dr. Ladislav Š t o l c
Agricultural University Prague
160 21 Praha 6 - Suchdol
CZECHOSLOVAKIA

Dear Gunnar Jørgensen.
Best wishes for health and much success in your scientific work on your 50 years birthday.

prof. V.Berestov

VOJVODINAINVEST
INSTITUT ZA ISTRAŽIVANJE RAZVOJ I INVESTICIJE

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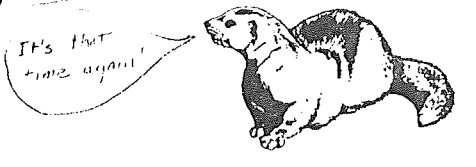
(02) 26 14 10



Happy Birthday, Gunnar!
from the
Oregon State University
Fur Farm Staff

vaš znak: naš znak: 1279 datum: April 18th 1983.

DEAR SIRS,

Thank you kindly for publishing our information concerning the stone martin breeding in your magazine.

We are glad to inform you that we shall soon make a decision to organize an international meeting of nutria breeders, which is to take place here in Yugoslavia. Most likely this meeting will be scheduled for the Spring of 1985.

Best regards,

ARPAD DUDAŠ
"VOJVODINAINVEST"

Ron Scott
Nancy Weber
Cliff Thomson

3e CONGRES INTERNATIONAL SCIENTIFIQUE
SUR LA PRODUCTION DES ANIMAUX A FOURRURE

3rd INTERNATIONAL SCIENTIFIC CONGRESS
IN FUR ANIMAL PRODUCTION

25, 26, 27 avril 1984, Versailles, France

FORMULAIRE A RENVOYER APRES L'AVOIR REMPLI
avant le 1er MARS 1983

PLEASE, FILL IN AND RETURN THIS FORM
before MARCH 1st 1983

1. PARTICIPANT

Prof. ☐ Dr. ☐ Mr ☐ Mme rs ☐ Mlle iss ☐

NOM : Name

Prénom : First name

Institut, Laboratoire, Firme : Institute, Laboratory, Firm :

Profession :

Adresse (à laquelle les documents seront envoyés) : Address (which documents should be sent) :

Pays (country) :

2. COMMUNICATIONS

	oui yes	non no
Présentera une communication I wish to give a paper	☐	☐

Titre probable : Tentative title :

	oui yes	non no
Présentera un poster I wish to present a poster	☐	☐

Titre probable : Tentative title :

3. PERSONNES ACCOMPAGNANT LES PARTICIPANTS
Persons accompanying participants

Mme rs / Mlle iss / Mr

Mme rs / Mlle iss / Mr

Mme rs / Mlle iss / Mr

Date

Signature

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