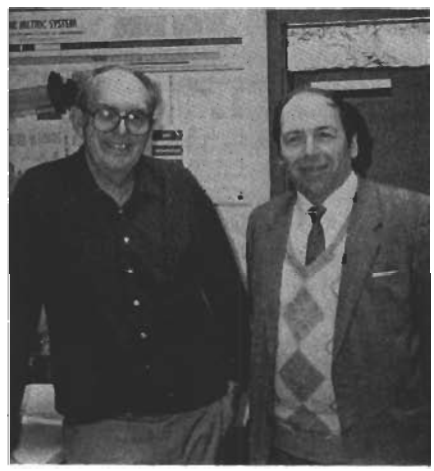
Viral and bacterial diseases of mink raised in Soviet Union

By DR. JOHN GORHAM*

In the fall of 1990, I had the opportunity to spend a month in the Soviet Union visiting fur farms. Throughout the trip, I accompanied Dr. Vladimir Slugin, the most-respected and knowledgeable fur animal disease veterinarian in the Soviet Union. Thus it was a good opportunity to learn about fur animal diseases in the U.S.S.R. Visits were made to farms in the Moscow, Vladivostok, Lake Baikal, Leningrad, and western Ukrainian regions.

When I visited a typical Russian state fur farm, I was impressed with the rows and rows of sheds that covered the landscape. It is not unusual to have 125,000 kits on a single farm! With thousands of mink compressed on a few acres, the control of viral and bacterial diseases is paramount. In addition to mink, many state farms have blue and silver foxes; a few have black sable and rabbits.

Most farms have three or four veterinarians in attendance. When Stalin was in power, it was somewhat hazardous to be a fur animal veterinarian. The veterinarian at the Pushkino farm (which is located near Moscow) had a difficult time controlling a distemper outbreak with a killed vaccine that was not effective. Because he could not stop the losses, he was sent to prison for 10 years as an enemy of the state! Some veterinarians were executed. I am glad that I wasn't a Soviet veterinarian attempting to control disease outbreaks in those years or I might have spent some time in the "slammer" myself.



AMERICAN veterinarian Dr. John Gorham, left, with Soviet fur animal veterinarian Dr. Vladimir Slugin. The latter also serves as editor & publisher of the Russian journal "News of Fur Production." ■

All of the diseases that I discussed with Slugin are familiar to North American and Scandinavian mink farmers.

ALEUTIAN DISEASE

The history of Aleutian disease followed the disease pattern in western countries and Scandinavia. No one will ever know whether breeding stock that they had purchased from other countries was infected with AD or if they had their own Soviet strains of AD virus.

In any event, the IAT test was the first measure of control and it was the law that all mink had to be tested. While the incidence of AD was reduced, Slugin soon recognized that the IAT test was not sensitive enough and only detected about half of the AD carriers.

As soon as the CIEP test was published by Cho and Ingram, Slugin quickly confirmed their work in 1975-76. He prepared tissue antigens using the spleen, liver, and mesenteric lymph nodes of infected AD mink. Slugin currently uses about 15,000 mink per year to prepare tissue antigen for use on state farms.

When the state farms were CIEP tested for the first time, some of the farms had a population of mink that was 90 to 100 per cent positive. Because of the mandated testing program, 30 per cent of the farms are now free of AD. About 20 per cent of the mink are positive on the remaining farms.

AD testing in the U.S.S.R. is mandatory, not voluntary as in other mink-raising countries. On Soviet farms, all mink are tested in January and February. The test is repeated between March 25 and April 10. Slugin feels that testing pregnant females at this time causes no harm. All barren females that aborted their kits are retested in May. Then all kits and adults are tested during the late summer and fall. Toe-bleeding does not transmit AD.

Since kits from positive females receive maternal AD antibody, the kits are positive in June. If they are tested in July and August, they become negative as they lose their positive maternal antibody. When the kits become actively infected with AD from the dam or by contact with other AD mink, they become positive again. Therefore, the Soviets do not test their kits until after Oct. 15. This date corresponds with the recommendations made

WOMEN WORKERS. Thousands of women work on fur farms in the Soviet Union. Pushing the farm cart in this photo is a woman employed at an operation near Sokal in the western Ukraine and near the border with Poland. ■

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by Dr. Mogens Hansen of the Danish Fur Breeders association.

All positive females and their kittens are isolated in separate sheds and pelted when prime. Slugin pointed out that if a female is positive, all of her kits eventually will become positive. After learning of the Danish research confirming that the AD virus caused a fatal pneumonia in kits, Slugin has diagnosed AD pneumonia in young kits on U.S.S.R. farms.

Interestingly, the Soviet veterinarians routinely test the blood of dead mink. This has not been a common practice in the US.

DISTEMPER

While distemper caused major problems in the past, the widespread use of US vaccines has been an effective control. Mink kits are vaccinated after they reach 10 weeks of age.

No adult breeders are vaccinated at the time the kits are vaccinated in the summer. All breeder mink are vaccinated in January each year. One interesting aspect of vaccination programs was the use of long-acting anesthetics. On the day before vaccination, all mink are given an anesthetic preparation in their food. According to Slugin, they easily can be picked up on the following day and vaccinated without having to catch them.

There have been some reports that outbreaks of virulent distemper in mink or the use of attenuated vaccines on mink farms around Lake Baikal in Siberia have been the source of seal deaths in that lake. These are unsubstantiated reports and cannot be considered valid observations.

MINK VIRUS ENTERITIS

Because their US-made vaccines have been effective, the Russians are not as concerned about mink virus enteritis as they were in previous years. As with distemper vaccination, the kits are vaccinated in the summer after 10 weeks of age, and all adults are vaccinated in January each year.

The Soviet veterinarians are well aware that if kits are vaccinated at too young an age, the maternal antibody has a blocking effect and the kits will be susceptible to MVE and distemper when they are older.

PSEUDORABIES VIRUS

Because of widespread pseudorabies infection in pigs, pork always is cooked if it is to be included in the ration. They have had many serious outbreaks of pseudorabies in mink.

The incubation period in mink is four to five days, and time between the onset of signs and death may be less than six hours. The mink are uncoordinated, exhibit paddling or swimming movements, roll over, and become comatose prior to death.

All mink farmers know that cooking mink feed is a real hassle. At the present time, the Russian veterinarians are experimenting at the Fur Animal Institute in Moscow with pseudorabies vaccines to be included in their regular vaccination program. If the vaccines protect the mink, they will not have to cook pork byproducts, even though the byproduct contains the live pseudorabies virus that would kill mink.

EPIZOOTIC CATARRHAL GASTROENTERITIS

ECG has been diagnosed by Slugin and is sometimes confused with mink virus enteritis. The cause has not been definitely determined in the U.S.S.R., but Slugin feels that coronaviruses and rotaviruses, along with pathogenic bacteria, particularly *E. coli*, act together and cause disease. He and other veterinarians are conducting experiments to determine the cause.

Slugin feels that rotaviruses may play a role in a condition that we call in the United States "sticky kits." These kits have a diarrhea at an early age (less than a month) and the female does not clean them. The death rate can be high on some farms.

MINK ENCEPHALOPATHY

Several small outbreaks of mink encephalopahy, sometimes called mink scrapie, were diagnosed in the U.S.S.R. in the early 1980s. Slugin said that the outbreaks could be traced to feeding mink sheep that had scapie.

The Pushkino farm also had an outbreak in which 160 mink died. The mink were excitable, rushed around the pen, and defecated all over the pen instead of in one corner. Their tails were arched over their backs like squirrels. They would hold food in their mounths for a period of time and appeared sleepy and uncoordinated. Dead mink often were found with their teeth firmly fastened to the wire mesh.

Slugin made a suspension of brains, livers, and spleens of some of the dead mink and inoculated the suspension intraperitoneally into mink, black sable, blue fox, silver black fox, and ferrets. After a long incubation period, the mink and black sable showed nervous signs and died. Microscopically, the brains show-

HUGE SOVIET FARM. This is an overview of Rodniki fur farm, located near Moscow. Its herd includes 17,000 female breeder mink. ■

ed typical nerve cell changes. The foxes and ferrets were not affected.

BOTULISM

Two-way, three-way, and four-way vaccines are used. Like American mink farmers, Soviet farmers realize that when kits are vaccinated at 10 weeks of age or older, there is a period of time when they are not protected against botulism. It requires about three weeks after vaccination to develop full immunity against botulism.

To avoid an outbreak of botulism in the unprotected kits, the Soviets are careful about selecting meat or fish byproducts in June and July. As a general rule, all suspicious feed is cooked. Pork products always are cooked at all times of the year to prevent pseudorabies outbreaks in the mink.

PSEUDOMONAS (HEMORRHAGIC PNEUMONIA)

This disease has caused huge losses, particularly on farms in the Ukraine. In the late 1980s, 18,000 mink died on one farm. The following year, the same farm lost 16,000 mink with another sero-type of pseudomonas bacteria. They feel that the disease can be controlled with present-day vaccines.

Some pseudomonas vaccines are made in the U.S.S.R.

TUBERCULOSIS

Bovine tuberculosis is a problem in both mink and foxes.

The source of infection is contaminated beef byproducts. Tuberculosis virtually has been eradicated in the US cattle population; consequently, tuberculosis of bovine origin has not been recognized in US mink.

On the other hand, avian tuberculosis has been diagnosed in US mink. Poultry and pork byproducts (pigs can be infected with avian tuberculosis) are the sources of this bacteria.

Mink with the Chediak-Higashi syndrome (CH-S) are highly susceptible to all types of tuberculosis and eventually will die of the disease because the white cells of the blue (CH-S) genotypes cannot destroy the invading tuberculosis bacteria.

SALMONELLOSIS

Salmonella bacteria have been isolated, but their significance other than causing abortions in pregnant females is not known.

Apparently, all dead mink in the U.S.S.R. must be autopsied. This totals about 450,000 each year, which is three per cent of the estimated production of 13 million mink. Bacteriologic examinations are not done on most of the farms.

In some instances, reported herein, I may not have interpreted conversations with Soviet veterinarians correctly. Also, I took the liberty of using notes made by Dr. Mogens Hansen when he discussed mink diseases with Slugin during the fall of 1990.

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SIBERIA, near Lake Baikal, is the locale where this picture was taken. A woman fur farm employe holds a big sapphire male by his tail. ■

Stress opportunities in furs: Brennan

By JOHN J. BRENNAN*

We live in the "land of opportunity," so the saying goes.

Contrary to all the negative articles about the financial condition of the fur industry, why doesn't someone write an article about "big opportunities ahead in furs!? "

Many of the old traditional methods of marketing furs to the public are not working. Yet there are more and more people wearing fur garments! Why? For many, it's their first fur! Isn't that a positive for the future?

And, they love their fur garments — just watch them on the street when the wind chill on Michigan Avenue in Chicago is −15 °Fahrenheit.

How else can they be so warm and be able to enjoy the garment for 10 or 15 years?

During the next five years, watch the new marketing and merchandising approaches that will be used by companies offering fur garments to the public. We saw in the 80s major marketing changes affecting airlines, auto companies, food chains, men's and women's apparel, and other businesses. Why shouldn't the same positive actions take place in the fur business?

Change is difficult for many — but it's also healthy for many.

Let's open the window and let in some fresh air, new ideas, and new people. It appears to me that the next 10 years could be very exciting for many people involved in this industry.

**John J. Brennan is senior vice president of Milk Specialties Co., parent firm of National Fur Foods, PO Box 220, New Holstein, Wis. 53061.* ■

Michigan's Abramson dies at age of 70

An Upper Michigan mink farmer for nearly 35 years, Albert H. Abramson of Ironwood, has died at the age of 70. He had lived in Idaho and California prior to moving back to his native Ironwood in 1948.

Abramson was an Army Air Corps veteran of World War II, serving in combat in the European theater of operations. He married the former Julianna Niemi in California in 1945.

The late fur farmer long was active in St. Paul Lutheran Church in Ironwood, where funeral services were conducted. Abramson's survivors include his wife, a son, and a daughter.

Memorials in honor of Albert H. Abramson are suggested to St. Paul Lutheran Church Memorial Fund, Ironwood, Mich. 49938. ■

DO IT MY WAY

High school football coach to his team: "Keep in mind that football develops your initiative, individuality, and leadership qualities. Now get out there and do exactly what I tell you to do." ■