Some herding, record keeping and treatment methods used in Alaskan reindeer herds

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Abstract: Approximately 20000 reindeer (*Rangifer tarandus*) in Alaska are gathered once or twice yearly to facilitate identification, serologic sampling, treatment and antler removal. Various air and land craft are used to bring the animals into a corral system from which they can be herded into a padded, pneumatically operated, squeeze apparatus. Ear tags are applied or read if already in place and ears are notched. A portable, computerized rapid data retrieval system is used to record reproductive success, vaccination and treatment status and other miscellaneous information. Ivermectin is being administered in the early winter months to treat reindeer in many herds for warbles, nasal bots and internal parasites. A killed, homologous *Brucella suis* type 4 vaccine is being used in two large (3500) herds. Efforts are being made to incorporate other innovative methods to improve herding and corralling methods.

Key words: reindeer, *Rangifer tarandus*, restraint, computer, brucellosis vaccine, ivermectin, stress, gathering, corralling.

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Rangifer, Special Issue No. 1, 1986: 111 - 113

Introduction

Reindeer are raised in Alaska as semi-domestic animals and are owned by private native individuals or by native corporations. They represent an unique agricultural endeavor with management demands not experienced by other livestock industries. Herds vary in size from 200 to nearly 10000 animals and are free-roaming on vast tundra ranges. They are raised for meat production and by-products such as antlers and hides. A biologic and socioeconomic review of Alaska's reindeer industry is available (Stern *et al.*, 1980).

Reindeer herders in Alaska gather their animals once or twice yearly to harvest antlers, blood test, vaccinate and identify individuals. Reindeer are gathered in the winter with the use of snowmobiles. In the summer, walkers, horses, dogs, three and four wheel all-terrain-vehicles, snowmobiles and helicopters are used to gather reindeer. Groups of animals are herded along wing fences and into corral systems capable of handling a few hundred to two thousand reindeer. These corrals are located in remote areas usually without road access, electrical power or communications. It is necessary to spend a minimum amount of time handling each individual reindeer because of the large numbers of animals waiting with no food and little if any water. An average of 30 to 60 seconds is spent working on each animal.

Several new reindeer husbandry and disease control methods have been or are presently being developed for use by reindeer herders. This report describes some of these techniques now being used or tested under field conditions.

Reindeer handling aids

Traditionally, reindeer have been herded into a large circular corral from which small groups of from 20 to 50 are placed in «pockets» which lead to a V-shaped chute system. The end of the

chute has «windows» cut into it which allows handlers to restrain individual reindeer by holding their head and antlers. This system is effective but requires considerable manpower, allows movement, and adds to the stress of the reindeer which are not accustomed to physical restraint.

A deer squeeze chute developed in New Zealand (MAK Deer Crush, Contract Engineering, P. O. Box 1348, Invercargill, New Zealand) has proved very effective in restraining individual animals with a minimum of personnel and stress. This unit consists of a V-shaped chute approximately 2 m long with thick padded sides. One of these padded sides is hinged at the floor and moves against an animal with the aid of a pneumatically powered ram system. The animal is held firmly and moves very little. (Fig. 1) The head is available at the front of the chute for blood sample collection, ear notching and tagging plus antler removal. The entire chute is mounted on an automatically zeroing scale which allows weighing an animal in 1 or 2 seconds. The scale read-out is digital and can be connected directly to a computerized data management system. A portable air compressor powered by a gasoline engine drives the air ram system for the squeeze chute. This same compressor is used to power hand-held antler cutter. Antlers are harvested in velvet. The rapid cutting action of the pneumatic cutters decreases the time the animal has to be restrained. The cutters are modified pruners which were originally designed to cut tree limbs.

Data management system

Reindeer research projects and general herd management decisions have pointed to the need for the development of a data handling system which could be taken to the corral site, allowing immediate retrieval and updating of an individual animal's records. A Kaypro 10 computer with hard disk drive, Questa data saver with battery back-up and portable generator were selected to serve as hardware for the data management system (Kokjer, K. J.; Ray-Landis, K. A.; Dieterich, R. A., unpublished data, 1985). Software consists of eight major programs in a menu driven system using dBASE II as the data base system. Age, sex, reproductive success, castration, treatments, vaccinations, blood test results, miscellaneous comment codes and body weight information can be gathered for each individual reindeer as it passes through the chute system. Approximately 15 to 20 seconds are needed to display an individual's record and enter new data. Procedures, such as vaccination, which are being carried out on all animals can be pre-programmed for automatic entry.

A separate analysis program allows researches and herd owners to ask complex questions pertaining to both research and management. For example, one might ask: How many 4-year-old females, weighing more than 80 kg, have been blood test positive for brucellosis for the past 2 years and produced offspring? The program can provide both a numerical answer and a print-out of the animals' identification number. A report program is also available which totals the numbers of reindeer in herds by age and sex. The program produces totals for the entire herd plus totals for only those animals seen at the last gathering. It also produces a total count for each of the miscellaneous comment codes such as abscesses, warbles, and broken antlers.

Parasite and disease control

Approval has been obtained from the United States Food and Drug Administration for the use of ivermectin in reindeer. This approval was obtained after safety, efficacy and residue studies were completed. Reindeer are not to be slaughtered within 56 days of treatment. Ivermectin is highly effective in controlling reindeer warbles, nasal bots, lungworms and gastrointestinal helminths of reindeer. Treatment is normally carried out from October through January. Levamisole is administered in some herds during the summer months to control intestinal parasites.

Brucellosis in Alaskan reindeer is caused by *Brucella suis* type 4 infection (Dieterich, 1981). Swollen joints, enlarged testicles, abscesses and, motst importantly, abortion are the results of the infection. The incidence of brucellosis has been increasing in Alaskan herds at an alarming rate over the past few years. An experimental killed, homologous vaccine with adjuvant is now being used in extensive field tests after laboratory testing of its use in reindeer confirmed its ability to prevent *Brucella* abortion. Approximately 3500 reindeer have been vaccinated and will be examined for clinical signs, reproductive success and serologic response as compared to non-vaccinated controls. Widespread vaccination will begin in the near future (Dieterich, 1985).

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Fig. 1. Graphic depiction of reindeer in squeeze chute with data being relayed to computer operator.