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Grotelueschen, Dale M., "G87-849 Vaccinations in Sheep Flocks" (1987). *Historical Materials from University of Nebraska-Lincoln Extension*. 208.

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Vaccinations in Sheep Flocks

High economic return per dollar invested can result from proper flock health management. Vaccinations are part of health management.

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A preventive health program in modern sheep production systems is advisable. High economic return per dollar invested can result from proper flock health management. Health management is much more than a vaccination program. Vaccinations themselves are considered for a variety of reasons. These include disease risk management and strict prevention. Vaccinations may also be indicated in situations where management practices other than vaccine administration do not produce optimum health or economic benefits.

It is not feasible to outline one vaccination program suitable for all sheep producers. As in other species, recommendations must be made on an individual basis to apply to the various health problems encountered. Only in situations where the sheep population as a whole is considered to be at risk, such as enterotoxemia, can blanket recommendations be made. Local veterinarians are the best qualified persons to give advice on developing sound flock vaccination programs. This publication will familiarize you with health conditions in sheep which can be prevented using vaccination procedures.

Strict adherence to manufacturer's recommendations is important to success. Maintenance of sterility and cleanliness is imperative. Refer to NebGuide G86-797, *Causes of Vaccination - Immunization Failures in Livestock*, for further information in this area.

Management

Application of sound management principles must be maintained to help insure success of any vaccination program. Potential buyers of new animals and their veterinarian if possible should examine animals closely so as not to buy already infected animals. This is true whether the animals are being introduced into existing flocks or used in development of new flocks.

Health management itself is directly affected by other areas of management. A high level of nutrition promotes general animal health and prevents many health problems. Additionally, nutrition promotes the effectiveness of health practices, such as vaccinations, as the body immune system is more likely to respond favorably. Many other husbandry practices, such as sanitation, have a direct effect on animal health. Disease control measures related to genetics and range management also deserve attention, especially when controlling sheep health problems.

Disease prevention resulting in increased levels of health and performance must be made a part of a total management program. Healthy animals are required if one is to expect a favorable vaccination response.

Considerations

The various classes of sheep must be considered in identifying health risks that need attention. The four classes are: breeding ewes, breeding rams, newborn lambs, and feeder lambs. Preventive health programs and recommendations are different for each class.

Use of vaccines in strict preventive programs is advisable. Administration of vaccines before exposure to disease allows the animal to generate a high level of immunity before contact with a disease-causing organism. Animals vaccinated in the face of an outbreak do not have this advantage. Therefore, vaccine usage under these conditions generally cannot be expected to produce the best results.

Preventive Vaccinations

Recommendations may vary according to manufacturers, management conditions, and other factors. Do not confuse the term vaccination with the term prevention. Vaccinations are one area to be considered in a preventive health program.

Enterotoxemia

(See NebGuide No. G86-794, *Enterotoxemia in Lambs*, for more information.)

Cause: *Clostridium perfringens* type C and/or D. Toxins produced by this anaerobic bacteria cause this common disease in sheep flocks. Sudden death is the most frequent sign with other symptoms also present.

Vaccine: *Clostridium perfringens*, Type C and D toxoid, is effective when administered under proper conditions.

Vibriosis (*Campylobacteriosis*)

Cause: *Campylobacter (Vibrio) fetus intestinalis* (not the same as vibriosis in cattle--vaccine for cattle is NOT effective.) The name of this bacteria is being changed from *Vibrio* to *Campylobacter*. Generally, this disease causes abortions, dead, and weak lambs. It is probably the most common cause of abortions in sheep.

Vaccine: A bacterin (killed organisms) is effective. Usually requires two vaccinations initially to ewes and ewe lambs, then yearly boosters. Recommendations may vary according to conditions and past disease history.

Enzootic Abortion of Ewes (EAE)

Cause: *Chlamydia psittaci*. This organism is classified as a rickettsia, smaller than a bacteria and larger than a virus. This organism generally produces abortions, conjunctivitis (eye infections), arthritis in lambs, epididymitis (resulting in reduced fertility or sterility in males), pneumonia, and diarrhea. It is a major cause of abortions in ewes.

Vaccine: An EAE vaccine is produced and usually is administered in combination with a vibriosis bacterin.

Leptospirosis

Cause: Strain or strains of the bacterium, *Leptospira pomona*, *Leptospira canicola*, *Leptospira hardjo*, *Leptospira grippotyphosa*, *Leptospira icterohaemorrhagiae* and others. Generally, this disease is found to cause abortions, anemia, and systemic disease in sheep. Necessity of vaccination may vary due to exposure risk and other factors.

Vaccine: Killed bacterins are available which produce protective levels of immunity.

Tetanus (Lockjaw)

Cause: *Clostridium tetani*. This bacteria inhabits contaminated soil and enters the body through open wounds such as castration, tail docking, or lacerations. Man is susceptible to tetanus. The death rate in lambs is high (usually over 75% in affected animals). The disease usually manifests itself as muscle spasms, stiffness, and other nervous system signs.

Vaccine: Tetanus toxoid is effective in prevention when administered to healthy animals. This is important especially on premises considered to be at risk for occurrence of tetanus.

Other Clostridial Diseases (Blackleg, Malignant Edema, Braxy, etc.)

Cause: *Clostridium chauvoei*, *Clostridium septicum*, *Clostridium novyi*. These bacterial soil inhabitants cause occasional disease in the sheep population. *C. chauvoei* and *C. septicum* may normally be found in the sheep intestinal tract. Observing hygienic principles of animal management is helpful in prevention. Generally, affected animals show lameness and subcutaneous swelling with rapid death characteristic.

Vaccine: Effective vaccine is available when conditions justifying its use exist.

Bluetongue (Sore muzzle)

Cause: The bluetongue virus is spread by the insect *Culicoides variipennis*, a biting midge. Generally, the disease produces oral erosions or ulcers, nasal discharge, crusty nostrils, and lameness.

Vaccine: A vaccine is available when vaccination is advisable. Multiple strains of bluetongue virus exist. Therefore, success may depend upon the use of the proper vaccine strain as well as the immune response of the animal.

Sore Mouth (contagious ecthyma)

Cause: The sore mouth virus is a pox virus. This virus and the vaccine itself may affect man--use caution when handling affected animals or vaccine. In sheep, lesions are found primarily on the lips but also may affect nostrils, eyelids, mouth, vulva, teats, and feet. This disease is transmitted by direct and

indirect contact.

Vaccine: Sore mouth vaccine is a live virus vaccine. Be sure vaccine use is justified. Read administration directions thoroughly. Wear rubber gloves for protection from the vaccine virus. Do not use vaccine in flocks free of the disease as the vaccine procedure will introduce the virus to that flock.

Conclusion

Vaccination programs must be designed for individual flock situations. Proper diagnosis of health problems in sick animals and postmortem examinations of animals that die are excellent methods of updating a vaccination and preventive medicine program. Sound management practices, with vaccinations a part, are valuable in attaining high levels of animal health in sheep flocks.

File G849 under: ANIMAL DISEASES

C-2, Sheep

Issued July 1987; 8,000 printed.

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Elbert C. Dickey, Director of Cooperative Extension, University of Nebraska, Institute of Agriculture and Natural Resources.

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