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Feedlot Health Through Preventative Management

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Introduction

Livestock production has become increasingly intensive and the momentum of the change has been so great that realistically it has been instrumental in presenting the Veterinarian with problems that have outstripped his knowledge.

Disease patterns have changed radically. Instead of being presented largely with acute, specific, and diagnosable and preventable diseases using vaccines, sera and antibiotics, the tendency has been for the occurrence of chronic, insidious, and complex groups of diseases. These chronic insidious diseases are difficult to diagnose and have a large number of causal agents. They create a massive undramatic morbidity and economic loss unless very adequate record keeping, including at least rates of gain and daily costs, is kept. They require for their elimination great expertise in the exercise of husbandry and housing skills rather than routine usage of vaccines or drugs.

The management of these problems will require a great cooperation of agriculturists, architects, engineers and veterinarians. Without the cooperation we will witness more failures than successes in the coming years. None of us can be expected to be a total expert in all of these management areas. It has become most difficult to maintain expertise within one's own field due to the rapid expansion of knowledge. The availability of expertise to support one's opinions and provide solutions to problems within their areas will be essential. I've been told only Americans travel individually as consultants. It is said Asians travel in threes, a scientist, an engineer and a finance officer.

Discussion

Where does the Animal Disease Research and Diagnostic Laboratory fit into this management picture?

The diagnostic activity: The laboratory provides trained personnel to assist in disease diagnosis so adequate corrective measures can be taken to (1) prevent further acute losses, (2) establish sound prevention and eradication programs and (3) help veterinarians through laboratory confirmed diagnosis to become more proficient diagnosticians.

The research activity: The purpose of this activity is to develop new techniques and methods which will illustrate disease processes more quickly and accurately. There are numerous diseases of livestock and poultry for which there are as yet no adequate scientific and technological bases for diagnosis or control. Diseases cause an economic loss to the nation estimated greater than

\$2.5 billion per year. Some of these diseases are infectious, while others are due to metabolic, toxic, nutritional, genetic or organ dysfunction. Effective control depends on the discovery of basic mechanisms and techniques for eradicating the disease or for interfering effectively and economically with the process leading to the disease. Only individuals who are aware of the latest developments in biomedical science are likely to be effective in this effort.

Infectious diseases have a great variability in their degree of severity and transmissibility. A disease which may be subclinical may become explosive overnight with environmental changes or introduction of highly susceptible animals. The disease organisms may be continually present or periodically reintroduced from outside of the base premises.

Several factors affect the occurrence of the disease process. They include the following:

The resistance of an animal to disease agents may be related to natural immunity, acquired immunity from previous natural infections resulting in recovery or vaccinations.

The severity of the infection is also related to the number of organisms which the animal is exposed to and the route of exposure. The first animals infected become an incubation source for large numbers of organisms. The rapid transmission from one animal to the next tends to increase the virulence of the organism. A good example is TGE infection of swine, winter and summer. This process results in a slow progressive disease syndrome developing into a full-blown epidemic with resulting high mortality.

Management systems also have an effect on disease occurrence. Intensive housing of animals has changed the nature of some disease agents. IBR, for example, in the early 50's was a very mild respiratory disease and basically an infection of the mucous membrane of the genital tract. The virus apparently has adapted to other systems producing digestive and encephalitis syndromes as well as severe respiratory lesions. Abortions may occur in susceptible animals.

IBR is present in New Zealand but is not reported as a cause of abortion nor a severe respiratory problem. This is most likely due to the housing, feeding systems and mild weather in New Zealand.

Feeding systems such as self feeders for cattle and sheep with no available roughage have contributed to numerous cases of acidosis, enterotoxemia and severe laminitis problems.

Present housing and confinement systems increase disease risks by having too crowded a confinement of the animals. This occurs through placing too many animals in one air space, reducing both cubic and square footage of available space. The failure to remove manure from close proximity of the animals and transferring manure through pens aid the transfer of disease organisms. Systems that fail to separate age groups, have poor or sometimes no drainage, have inconvenient feeding and watering arrangements, and neglect the comfort of the animals contribute to increased disease incidence.

Vaccines and medications will help control problems when they exist, but a healthy animal which does not require a vaccine is virtually certain to be more profitable than a vaccinated and challenged one.

What disease conditions do we see at the Animal Disease Research and Diagnostic Laboratory that restrict profitability in livestock productions?

I. Feedlot

A. Respiratory

1. IBR
2. PI-3
3. Pasteurellosis
4. Haemophilus

B. Enteric

1. BVD
2. Salmonellosis
3. Coccidiosis
4. Clostridial

C. Encephalitis

1. Thrombo-embolic meningo-encephalitis
2. Polio-encephalitis
3. Listeria

D. Miscellaneous

1. Infectious pododermatitis
2. Metabolic acidosis
3. Blackleg - malignant edema
4. Leptospirosis
5. Anaplasmosis

Conclusions

A general statement can be made that disease control will increase productivity. The most discouraging work a veterinarian does is to make suggestions which will prevent reoccurrence of disease and then have these suggestions disregarded. Another area is the constant search for "wonder" drugs and vaccines without first correction of management errors to reduce disease incidence. The usage of vaccines and antibacterial drugs are important for control and treatment but must not be looked at as cure-alls.

The livestock production industry must learn to depend on preventative veterinary medicine and not individual treatment and salvage operations. A correct diagnosis of a condition in a herd with resulting corrective and preventative measures is the most economically sound procedure.