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Popular Article

Important Tips of Animal Disease Outbreak Management In Field Conditions

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Abstract

Investigations of disease outbreaks in livestock always considered as a great challenge to the field veterinarians owing to limited access of sophisticated diagnostic tools as well as lack of availability of suitable laboratory facilities. This article envisages a spectrum of activities like clinical diagnosis to sampling as well as vaccination, epidemiological risk factor assessment, strengthening bio-security measures related to outbreak management which will refresh the knowledge of all stakeholders including veterinarians, animal owners and Govt. officials.

Introduction

An animal disease outbreak occurs when a specific infectious disease affects a significant number of animals within a particular population, region or species over a particular period of time. The occurrence of disease cases surpasses the normal expectancy. There is rapid and widespread transmission of the disease resulting in a higher incidence of illness and mortality among the effected ones. Animal disease outbreaks can fuel significant economic, social and public health implications. Therefore, it necessitates the requirement of a systemic and organized approach to control the spread of the disease and minimize its impact on animal populations. This article outlines some key steps and considerations for managing a veterinary disease outbreak in field conditions.

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1. Early detection and reporting

Early detection of an outbreak is crucial for prompt intervention. There should be strong surveillance system to promptly monitor for any signs of illness or disease in the animal population and report to the appropriate authorities.

2. Rapid Response

Once a disease outbreak is suspected or confirmed, it is crucial to respond quickly. This involves mobilizing resources, activating an emergency response team comprising veterinarians, animal health professionals, and relevant stakeholders, as well as implementing control measures.

3. Quarantine and isolation

Strict quarantine and isolation measures to prevent the spread of the disease should be implemented. Isolate infected animals from the healthy ones. Healthy animals should be moved to a different geographical location and restrict the movement of the affected hosts.

4. Disease diagnosis

Accurate diagnosis is crucial to confirm the field outbreak diseases timely and take appropriate control measures accordingly. Field diagnostic tools, on site laboratory facilities, rapid diagnostic tools through haemato-biochemical evaluations and techniques can be utilized for this purpose.

5. Control of vectors, intermediate host and reservoir

Vectors, intermediate host and reservoirs play a crucial role in transmission of the disease. In order to control vectors insecticides can be applied to vector breeding sites. Introducing natural predators and parasites that target them can eliminate vectors by competitive exclusion. Sterile male technique and other biotechnological methods that alter factor at genetic level can be introduced to control their population. Proper and timely vaccination, quarantine and isolation of the animals suspected of carrying the disease, surveillance and early detection of disease in intermediate hosts can allow for prompt intervention and control measures.

6. Ecological Niche filling

This practice is prevalent in the poultry industry where endogenous intestinal microbes are fed to day old chicks so that no space is available for the growth of pathogenic microbes such as salmonella, campylobacter and e coli.

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7. Strengthen biosecurity measures

It refers to set of measures and protocols to prevent the introduction and spread of pathogens from infected animals to susceptible ones. Control access to farm premises. Visitors should be restricted, and proper entry and exit procedures should be in place for staffs, vehicles and equipment. Strict hygiene practices including cleaning and disinfection of facilities, feed, water, equipment, vehicles should be practiced regularly. Personnels should use appropriate protective clothing, footwear and follow hand hygiene protocols. Testing before and after entry to the herd, isolation and quarantine of incoming animals, effective vaccination and prophylactic treatment should be implemented strictly.

8.Vaccination

Ring vaccination, barrier vaccination and dampening down protocols should be followed.

- **Ring vaccinations** -It is a strategy used to control the spread of disease by vaccinating animals in a ring or buffer zone covering a radius up to 3 KM around an outbreak area. It involves vaccinating susceptible animals that are in close proximity to infected or at-risk animals. It aims to create a barrier of immune animals around the outbreak area, preventing spread of the disease to unaffected populations.
- **Barrier vaccination:** It is a strategy used to prevent the spread of diseases by vaccinating animals along natural barriers, at the boundary of geographical areas or man-made barriers. The primary goal is to create a vaccinated buffer zone between infected areas and susceptible populations, blocking the transmission of the disease.
- **Dampening down-**It is a strategy where vaccination is done in the infected zone to reduce the chance of transmission of the ailment.

9. Slaughter and culling

Mass slaughter is practiced during bird flu to avoid the risk of contamination of the environment and transmission of the highly infectious disease.

10. Mixed, Alternate and Sequential grazing

Mixed grazing involves the simultaneous grazing of different livestock species such as cattle, sheep and goats within the same pasture. It helps control pathogenic parasites as some livestock are less susceptible to some parasites than others. Alternate grazing also known as Rotational grazing or paddock grazing involves dividing a pasture into several smaller sections called paddocks. Livestock are then rotated between these paddocks at regular intervals allowing the parasitic life

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cycle to break as they die off in vacant pastures without host. Sequential grazing also known as strip grazing involves moving livestock through a series of sequentially arranged pastures or strips.

11. Hygienic disposal of carcass

Carcass should never be disposed off at or near water source and should not be kept for long in shed to avoid contamination of soil and prevent vector approach. Unless approved by veterinarian, it is not safe to open a carcass. Deep burial method which is the most common method of carcass disposal should be practiced. Burning and incineration method have advantage over burial method as it completely destroys pathogens and carcass.

12. Communication and coordination

Establish efficient communication channels and coordination mechanisms among all relevant stakeholders, including veterinary authorities, farmers, veterinary professionals, and public health officials. Regular updates on the outbreak situation, control measures, and any necessary precautions should be circulated widely.

13. Education and Training

Proper educations should be given to animal owners, farmers, veterinarians, technicians and related stakeholders regarding the disease, its signs and symptoms, mechanism of transmission, prevention and control measures to combat the disease effectively. Training programs can enhance the capacity to detect, respond to, and manage outbreaks.

14. Continuous Monitoring and Surveillance

Even if the outbreak comes under control, ongoing surveillance is necessary to monitor the disease situation and track the effectiveness of control measures. It also helps to detect any new cases and prevent resurgence.

15. post-outbreak evaluation

Once the outbreak is under control, conduct a comprehensive evaluation to assess the efficiency of the response and identify areas for improvement. This will help strengthen future outbreak management strategy.

Conclusion

When an animal disease outbreak occurs, it is crucial to quickly identify the source of disease, potential risk factors, understand its transmission dynamics and epidemiological risk factors, and implement appropriate measures to control and prevent further spread. The above control measures and tips including early detection, reporting, quarantine measures, effective vaccination, biosecurity

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measures, continuous monitoring and surveillance system should be kept in mind and action should be taken immediately to combat the situation.

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